PB85-149300

Guidance for the Reregistration of Pesticide Products Containing Trichlorfon as the Active Ingredient

(U.S.) Environmental Protection Agency
Washington, DC

30 Jun 84

U.S. Department of Commerce
National Technical Information Service
NTIS

PB85-149300

GUIDANCE FOR THE REREGISTRATION OF PESTICIDE PRODUCTS

CONTAINING
TRICHLORFON
AS THE ACTIVE INGREDIENT

(057901)
CAS 52-68-6

ENVIRONMENTAL PROTECTION AGENCY
OFFICE OF PESTICIDE PROGRAMS

WASHINGTON, D.C. 20460

JUNE 30, 1984

EPA 540/RS-84-010

REPRODUCED BY
NATIONAL TECHNICAL
INFORMATION SERVICE
U.S. DEPARTMENT OF COMMERCE
SPRINGFIELD, VA. 22161

50272-101

REPORT DOCUMENTATION PAGE

1. REPORT NO.

2.

3. Recipient's Accession No. PB85 149300/AS

4. Title and Subtitle
Guidance for the Reregistration of Pesticide Products Containing Trichlorfon as the Active Ingredient.

5. Report Date
Issued 6/84

6.

7. Author(s)
EPA, Office of Pesticide Programs, Registration Division

8. Performing Organization Rept. No.
540/RS-84-010

9. Performing Organization Name and Address
US Environmental Protection Agency, Office of Pesticide Programs, Registration Division (TS-767), 401 M Street, SW., Washington, DC 20460

10. Project/Task/Work Unit No.

11. Contract(C) or Grant(G) No.
(C)
(G)

12. Sponsoring Organization Name and Address
Same as #9

13. Type of Report & Period Covered

14.

15. Supplementary Notes

16. Abstract (Limit: 200 words)

This document contains information regarding reregistration of pesticide products containing the subject active ingredient. The document includes how to register under a registration standard, regulatory position and rationale, and summaries of data requirements and data gaps. Also included is a bibliography containing citations of all studies reviewed by EPA in arriving at the positions and conclusions contained in the standard.

17. Document Analysis a. Descriptors

b. Identifiers/Open-Ended Terms

c. COSATI Field/Group

18. Availability Statement: Freely available

19. Security Class (This Report) Unclassified

20. Security Class (This Page)

21. No. of Pages 158

22. Price

(See ANSI–Z39.18)

See Instructions on Reverse

OPTIONAL FORM 272 (4–77)
(Formerly NTIS–35)
Department of Commerce

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INTRODUCTION

The Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA Section 3(g), as amended in 1978, directs EPA to reregister all pesticides as expeditiously as possible. Each registrant of a manufacturing use product of the active ingredient who wishes to continue to sell or distribute that product must apply for reregistration.

To fulfill this Congressional mandate, we have established the Registration Standards program which will review all pesticide active ingredients first registered before January 1, 1977. These pesticides will be reviewed in use clusters which are prioritized on the basis of a ranking scheme giving preference to pesticides used on food and feed crops.

The Registration Standards program involves a thorough review of the scientific data base underlying pesticide registrations and an identification of essential but missing studies which may not have been required when the product was initially registered or studies that are now considered insufficient. Our reassessment results in the development of a regulatory position, contained in this document, on each pesticide and its uses. The regulatory position may require the registrant to modify product labels to provide additional precautionary statements, restrict the use of the pesticide to certified applicators, provide reentry intervals, modify uses or formulation types, specify certain packaging limitations, or other requirements to assure that proper use of the pesticide poses no potential adverse effects to human health or the environment.

The scientific review, which is not contained herein but is available upon request, concentrates on the technical grade of the active ingredient and identifies missing generic data. However, during the review of these data we are also looking for potential hazards that may be associated with the formulated (end-use) products that contain the active ingredient. If we find serious concerns, we will bring formulated products under the provisions of the Registration Standards program to the extent necessary to protect the public.

EPA has the authority under FIFRA §3(c)(2)(B) to require that certain registrants submit generic data that will answer our questions regarding the hazard that may result from the intended use of the pesticide under review. Further, §3(c)(2)(B) provides that these data are to be submitted by those registrants who do not qualify for the formulator's exemption [FIFRA §3(c)(2)(D)]. Normally, this means that the registrants who are responsible for filling the data gaps are the manufacturing-use product producers (basic suppliers of the active ingredient). However, end-use producers will not qualify for the formulator's exemption if the source of their active ingredient: (1) is not registered with EPA, and/or (2) is produced by the registrant's firm, or a firm which has ownership in common with the registrant's firm. These end-use producers can qualify for the formulator's exemption if they change their source of supply to a registered source, provided the source does not share ownership in common with the registrant's firm. If the end-use product registrant decides to switch sources, a new Confidential Statement of Formula, EPA Form 8570-4, must be submitted to the appropriate Product Manager within 90 days of receipt of this Guidance Document. The chart on the following page shows what is generally required of those who do and do not qualify for the formulator's exemption in the Registration Standards program.

If you decide to request the Agency to discontinue the registration of any of your products subject to the reregistration requirements of this Guidance Document, please notify the Product Manager named in the cover letter, within 90 days from the receipt of this document, that you wish to voluntarily cancel the registration(s). If you decide to maintain your product registration(s), you must provide the information described in the following pages within the time-frames outlined. EPA will issue a notice of intent to cancel or suspend the registration of any currently registered product if you fail to comply with the requirements set forth in this Guidance Document.

This Guidance Document will be supplemented by EPA with additional information about compliance with data support requirements. In Monsanto v. Administrator, EPA was recently enjoined from implementing in any way the "mandatory data licensing" aspects of §3(c)(1)(D) of FIFRA. EPA has appealed this decision to the U.S. Supreme Court. Because this situation is currently unresolved, EPA has decided to proceed with the requirements in this Guidance Document which do not relate to compliance with the §3(c)(1)(D) provisions and to supplement the Document with additional guidance when circumstances permit. Failure to comply with the provisions of the subsequent guidance will also result in issuance by EPA of an intent to cancel the affected product registration(s).

Registrants are reminded that §6(a)(2) of FIFRA requires you at any time to submit factual information raising concerns of possible unreasonable adverse effects of a pesticide. You should notify the Agency of interim results of studies in progress if those results show possible unreasonable adverse effects.

PRODUCTS SUBJECT TO THE REGISTRATION STANDARDS PROGRAM	ACTION(S) REQUIRED TO MAINTAIN REGISTRATION
I. Products That Do Not Qualify For The Formulator's Exemption	
A. Single Active Ingredient Products*	These products must be reregistered. To obtain reregistration, labeling, packaging and data requirements must be satisfied in accordance with the Registration Standards Guidance Document.
B. Multiple Active Ingredient Products	These products will not be reregistered at this time. However, generic data required to continue the registration of the active ingredient under review, as described in the Registration Standards Guidance Document, will be required and some labeling precautions may also be required.
II. Products That Do Qualify For The Formulator's Exemption	Only when additional restrictions or labeling are needed to protect man or the environment will these products be subject to the Registration Standard requirements. Affected products will be dealt with in a variety of ways, including but not limited to the Label Improvement Program and special intent to cancel notices.

* End-use products of registrants who also produce a manufacturing-use product will not be required to be reregistered provided that registrant fulfills the requirements specified in the Guidance Document for manufacturing-use product(s). Such end-use products will be subject to the labeling changes required for products in "II" above. If there are no manufacturing-use products registered by any company end-use products will be required to be reregistered.

NOTE: If all registrants in "I" above fail to meet the requirements in I-A and B above, then the registrants in "II" lose their right to qualify for the formulator's exemption and become subject to the requirements in I-A and B.

II. REGULATORY POSITION AND RATIONALE

A. INTRODUCTION

This Guidance Document describes the Agency's regulatory position on registered manufacturing-use products (MPs) containing the insecticide trichlorfon. This position is based on a consideration of all accepted uses of pesticide products containing trichlorfon as the sole active ingredient, under Sections 3 and 24(c) of the FIFRA. Other considerations include the known chemical, environmental, and the toxicological characteristics of this pesticide and the established tolerances for residues in or on food and feed commodities. From these considerations the Agency sets forth the data and labeling requirements that must be met by registrants and applicants of trichlorfon products in order for a product to be registered or reregistered under this Document. Only those registration and labeling requirements for current and future substantially similar MPs are addressed here. Future MPs that differ appreciably from those described in this Document may require that amendments be made to this Document to reflect the differences.

B. Chemical Description and Use Profile

Trichlorfon is a common name for the insecticide dimethyl-(2,2,2-trichloro-1-hydroxyethyl)phosphonate as determined by the International Organization For Standardization (ISO). The Chemical Abstracts Registry (CAS) number is 52-68-6, and the EPA Chemical Reference number is 057901. Trichlorfon registered in the U.S. is manufactured by Mobay Chemical Corp., Intrachem S.A., Aceto Chemical Co., Inc., and Makhteshim Beer-Sheva Chemical Works Ltd.

Technical trichlorfon is a white crystalline solid with a melting point of 81-82°C. The empirical formula is $C_4H_8O_4Cl_3P$ and the molecular weight is 257.6. The boiling point for technical trichlorfon is 100°C at 0.1 mm Hg and the vapor pressure is 7.8 mm Hg at 20°C. Trichlorfon is soluble in water (9% at 20°C), alcohols, methylene chloride and ketones and slightly soluble in aromatic solvents.

There are thirteen federally registered manufacturing-use products (MPs) containing trichlorfon as a single active ingredient and one MP containing trichlorfon in combination with other active ingredients. A total of 118 end-use products containing trichlorfon are registered under Section 3 of FIFRA and seventeen are registered under Section 24(c) of FIFRA (Special Local Needs Registration).

Trichlorfon is a selective insecticide registered for use on a variety of vegetable, fruit, and field crops; livestock;

ornamental and forestry plantings; in agricultural premises and domestic dwellings; and for the control of parasites on fish in designated aquatic environments. Trichlorfon is an organophosphate pesticide exhibiting both contact and stomach poison action. Trichlorfon is commercially available as emulsifiable concentrate, soluble concentrate (liquid, solid), pressurized liquid, ready to use liquid, pelleted/tableted, impregnated material, dust, granular, and wettable powder/dust. Most products are applied by using either ground or aerial equipment. The particular type of equipment is determined by site and equipment available. Trichlorfon is classified as a general use pesticide.

C. Regulatory Position

Based on a review and evaluation of data and other relevant information on trichlorfon, the Agency has made the following determinations:

1. The data that have been reviewed do not show that the criteria listed in 40 CFR §162.11(a) have been met or exceeded for the uses of trichlorfon listed in this Guidance Document. However, because of gaps in the data base, the Agency cannot complete a full assessment of trichlorfon.

2. The Agency is unable to complete a tolerance reassessment because of extensive residue chemistry and toxicology data gaps. Future requests for tolerances will not be considered or approved until all the chronic toxicology data requirements have been satisfied.

3. No federal or state reentry intervals have been established for trichlorfon. However, based on available environmental fate and toxicology data, the Agency is requiring an interim reentry interval of 24 hours. This reentry interval will be re-evaluated when the data requirements in Tables A and B have been satisfied.

4. Manufacturing-use pesticide products containing trichlorfon as the sole active pesticide ingredient may be registered for sale, distribution, reformulation, and use, subject to the terms and conditions specified in this Guidance Document.

5. Registrants must provide or agree to develop additional data, as specified in the data tables, in order to maintain existing registrations or to obtain new registrations for substantially similar MPs.

6. There are unique label precautions that must be included on the labeling for trichlorfon products. These precautions are cited in Section G of this Document.

D. REGULATORY RATIONALE

The Agency has determined that it should continue to allow the registration of trichlorfon after considering the following:

1. Dichlorvos RPAR

Dichlorvos (DDVP), a putative metabolite of trichlorfon, was originally referred and accepted for the Rebuttable Presumption Against Registration (RPAR) process because scientific studies indicated that dichlorvos was mutagenic as well as potentially carcinogenenic, neurotoxic and teratogenic in laboratory animals. The RPAR Decision Document on Dichlorvos was issued by the Agency on September 30, 1982. In this document (i.e., Decision Document on Dichlorvos, Office of Pesticides and Toxic Substances, U.S. EPA, Washington, D.C., September 30, 1982) the Agency evaluated the available data on dichlorvos in accordance with 40 CFR 162.11 (Criteria for Determination of Unreasonable Adverse Effects) and concluded that the existing evidence did not support the issuance of an RPAR for dichlorvos and consequently, that an RPAR for trichlorfon as a precursor of dichlorvos was also not warranted.

The DDVP Decision Document concluded that additional data on carcinogenicity and mutagenicity were needed to complete the risk assessment for dichlorvos. DDVP was removed from the

RPAR process and returned to the registration process. On March 23, 1983, the Agency issued a Data Call-In Notice under FIFRA Section 3(c)(2)(b), requesting data on potential mutagenic effects of dichlorvos be submitted by March 23, 1985. However, the Agency will wait until the continuing National Cancer Institute (NCI) dichlorvos bioassay on carcinogenicity is completed (currently scheduled for completion in 1985) and evaluated prior to determining if additional data on the carcinogenicity of dichlorvos will be required. Since dichlorvos can be metabolized from trichlorfon, evaluation of these studies will be necessary for the completion of the trichlorfon risk assessment.

2. Trichlorfon RPAR

Trichlorfon was originally referred and entered the Rebuttable Presumption Against Registration (RPAR) process* because scientific studies suggested that trichlorfon may be oncogenic, teratogenic, fetotoxic and mutagenic. In this document the Agency has evaluated the available data on trichlorfon in accordance with 40 CFR 162.11 (Criteria for Determination of Unreasonable Adverse Effects) and concluded that the existing evidence does not support the issuance of an RPAR for trichlorfon, because the existing data base is inadequate for a valid risk assessment. Additional data are required to complete the risk assessment for trichlorfon.

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*Federal Register, Vol. 43, No. 77, Thurs. April 20, 1978.

Oncogenicity, chronic feeding, teratogenicity, mutagenicity, inhalation, dermal, neurotoxicity, and metabolism studies are required as specified in Table A. A decision as to whether trichlorfon should reenter the RPAR process will be made when these studies are completed.

3. Acute Toxicity

Adequate data indicate that trichlorfon is in Toxicity Category II on the basis of acute oral effects and Category III on the basis of dermal effects. Human hazard precautionary statements associated with these Toxicity Categories [40 CFR 162.10 (h)(2)(i)] should minimize the acute hazards associated with these routes of exposure. Adequate studies are unavailable to fully assess the acute inhalation, primary eye, primary dermal sensitization effects of trichlorfon to humans. The Agency has no valid acute inhalation, primary eye, dermal, or dermal sensitization data for trichlorfon manufacturing-use products.

4. Subchronic and Oncogenicity and Chronic Feeding

The Agency has no acceptable subchronic studies, chronic feeding or oncogenicity studies. The available data suggest that trichlorfon induces tumors at high dietary levels (500 and 1000 ppm), but are insufficient as the basis for an oncogenic risk assessment because of major protocol design and/or reporting deficiencies, as follows:

(i) High mortality in all groups (control and experimental), resulting in shortened duration of studies;

(ii) inadequate dosage regimens;

(iii) too few tissues (selected only at terminal sacrifice) in 5 or less animals per sex group examined;

(iv) inadequate histopathological data.

Additional subchronic, oncogenicity and chronic feeding studies are required as specified in Table A.

5. Mutagenicity

There is sufficient evidence that trichlorfon or its degradation products is mutagenic to bacteria and mammalian cells *in vitro*, and thus these data requirements are satisfied. Trichlorfon may also be clastogenic (cause chromosome breakage), as suggested by inadequately-controlled and/or inconclusive studies *in vivo.* Inconsistent results have been reported with many systems, however, and the instability of trichlorfon may be an important consideration in interpreting these data. Therefore, additional data on chromosome aberrations are required.

6. Teratogenicity

Trichlorfon administered by gavage to pregnant animals during the critical period of major organogenesis appears to be fetotoxic and teratogenic in rabbits, rats, mice and hamsters, but only at doses greater than those causing significant maternal effects and/or death. However, a teratology study in the rat where trichlorfon was fed during gestation did report an increased rate of anomalies at a dietary dose below the dose producing maternal effects. This study was not considered acceptable according to current Agency guidelines since the authors did not present the teratology data on a litter basis nor indicate the number of fetuses with specific malformations. Further, an insufficient number of pregnant females were available for analysis. Therefore the Agency is requiring an adequate dietary teratology study in the rat to resolve this issue.

7. Tolerance Assessment and Exposure

The ADI has been based on a NOEL for cholinesterase inhibition from a one-year feeding study in dogs. However, this study has now been judged inadequate according to current Agency guidelines since there were only 2 animals per sex per feeding level; individual animal data were not fully reported; and gross histopathologic examinations were incomplete or inadequate, and only a limited number of tissues were sampled. Further, hyperplastic adrenal nodules were found at all dose levels tested including the dose from which the ADI was based. Because of the above listed deficiencies in the design and conduct of the study, the Agency lacks confidence in interpreting the results. The significance of the nodules will be determined by a required additional dog study. The present study does not support the ADI regardless of the reported results. A complete tolerance reassessment is necessary with a new data base, including chronic feeding studies, being required.

Based on residue chemistry and toxicology considerations, however, there is no adequate data to confirm that current tolerances are likely to expose the public to unreasonable adverse effects.

8. Incidents

The Pesticide Incident Monitoring System (PIMS) reports covering the period from 1966 to January 1980 include 52 incidents involving the pesticide trichlorfon. Of these, 22 involved trichlorfon alone, while the remaining 30 involved trichlorfon and other pesticides. The human and domestic animal adverse effects reported in these incidents appear to have been the result of improper handling, lack of protective clothing or ingestion of trichlorfon.

9. Ecological Effects

Based on studies available to assess hazards to wildlife and aquatic organisms, technical trichlorfon is characterized as highly to moderately toxic to both cold water and warm water fish, very highly toxic to freshwater invertebrates and highly toxic to birds. Label precautions required by this Guidance Document should reduce the hazard to wildlife and aquatic organisms.

10. Environmental Fate

Available data are insufficient to fully assess the environmental fate of trichlorofon. Trichlorfon degrades rapidly in aerobic soils under nonsterile conditions, but in sterile soils trichlorfon is stable. Trichlorfon also degrades rapidly in alkaline pond water but remains stable in pond water under acidic conditions. The major degradate in both soil and pond water is DDVP. Trichlorfon is very mobile in soils of varying textures and organic contents. The potential for ground water contamination by the parent compound may be mediated by its degradation in soil, however, the potential for ground water contamination by DDVP cannot be assessed due to data gaps. Forestry and aquatic field dissipation studies did not show a potential for trichlorfon to persist in leaves, leaf-litter, soil, water, or sediment, nor did they show a potential for trichlorfon to accumulate in nontarget fish.

11. Summary of Regulatory Rationale

Under FIFRA the Agency cannot cancel or withhold registration simply because data are missing or inadequate (see Sections 3(c)(2)(B) and 3(c)(7) of the FIFRA). Rather, issuance of this Guidance Document provides a mechanism for identifying data needs. These data will be reviewed and evaluated when they are received and the Agency will determine at that time whether they will affect the registrations of trichlorfon.

E. CRITERIA FOR PRODUCTS SUBJECT TO THE GUIDANCE DOCUMENT

This Guidance Document covers products that contain trichlorfon as the sole active ingredient and the chart in the Introduction describes the extent to which such products are subject to this Guidance Document. Applicants for registration or reregistration of such products must comply with all the terms and conditions described herein. This includes making a commitment to fill data gaps on a schedule specified by the Agency. Also, applicants for reregistration must follow the instructions contained in this Guidance Document and complete and submit the appropriate forms within the specified times. End-use products must be in compliance with the label changes specified in this Document.

F. ACCEPTABLE RANGES AND LIMITS

1. Product Composition Statements

To be covered under this Guidance Document, manufacturing-use products must contain trichlorfon as the sole active ingredient. Each MP formulation proposed for registration or reregistration must be fully described with an appropriate certification of limits.

2. Acute Toxicity Limits

The Agency will consider for registration any MP whose acute toxicity category (I, II, III, IV) is supported by adequate acute toxicology data and appropriate precautionary statements in the labeling.

G. REQUIRED LABELING

All manufacturing-use products containing trichlorfon must bear appropriate labeling as specified in 40 CFR 162.10.

1. Label Requirements for Manufacturing-Use Products

a. Ingredient Statement

The ingredient statement for MPs must list the active ingredient as:

(dimethyl-(2,2,2-trichloro-1-hydroxyethyl)
phosphonate. ....__%.

b. Use Pattern Statement

All MPs must state that they are intended only for formulation into end-use products (EPs) for any of the use patterns listed below. A limiting factor will be the data that support each use pattern. No use may be included on the label where the registrant fails to agree to comply with the data requirements in either Table A or Table B for that use pattern.

- Terrestrial, non-domestic, food crop uses on:

  Alfalfa (seed crop), clover (seed crop), alfalfa (including grass mixtures), artichoke (globe), banana, barley, beans (dried-type, succulent), beans-lima, blueberries, beets, Brussels sprouts, cabbage, carrot, cauliflower, citrus fruits, clover (including grass mixtures), collards, corn (field, pop, sweet), cotton, flax, lettuce, oats, pasture grass, peanuts, peas (field: blackeyed, cowpeas, crowder, southern), peppers, pumpkin, rangeland grasses, safflower, soybeans (seed crop), sugar beets, tomato, wheat; also: field crops, truck crops (field borders).

- Terrestrial, non-domestic, non-food uses on:

  tobacco, ornamental evergreens (including pine), shade trees, woody shrubs and vines, herbaceous plants (including annuals, aster, chrysanthemum, daisy, iris, and nursery stock), lawns, turf, recreational areas (including picnic areas).

- Aquatic, non-food uses on: bait fish, gold fish.

- Domestic outdoor uses on: ornamental lawns, domestic dwellings (outdoor).

- Forestry uses: forest trees.

- Greenhouse, food uses on: cucumbers, peppers, spinach, beets (root crop), beans (lima, green and wax), corn (sweet and field), peas. These uses are from a 24(c) label restricting applications to research crops.

- Greenhouse, non-food use on:

  Weed hosts of plant pathogens. This use is from a 24(c) label.

- Indoor uses:

  Dairy cattle (non-lactating), beef cattle, horses, dairy barns (including manure and garbage dump treatment), milking rooms including manure and garbage dump treatment, animal buildings and premises (including barns, shelters, stables, feedlots, holding pens, manure and garbage dump treatment), animal hospitals, cat quarters, dog quarters (including kennels), dogs, domestic dwellings, garbage dumps, latrines, recreational areas (including picnic areas), poultry packing plants, red meat packing plants, commercial, institutional, and industrial areas (inedible product areas), eating establishments (inedible product areas), food processing, handling and storage plants/areas (inedible product areas).

The attached "EPA Index to Registered Pesticides" entry summarizes all currently acceptable uses for single active ingredient products containing trichlorfon, including sites of application, target pests, dosage rates, restrictions and limitations, and the method and frequency of application.

c. Precautionary Statements

Labels for all MP products containing trichlorfon must bear statements reflecting the hazards to man and the environment [40 CFR 162.10]. Trichlorfon is in Toxicity Category II on the basis of acute oral effects and Category III on the basis of acute dermal effects. The Agency has no valid acute inhalation, primary eye, primary dermal, or dermal sensitization data for trichlorfon MP products.

- Based on data reviewed by the Agency, the environmental hazard statement below is required to appear on all MPs containing trichlorfon:

  > "This pesticide is toxic to fish and wildlife and is extremely toxic to aquatic invertebrates. Do not discharge effluent containing this product into lakes, streams, ponds, estuaries, oceans, or public waters unless this product is specifically identified and addressed in an NPDES permit. Do not discharge effluent containig this product to sewer systems without previously notifying the sewage treatment plant authority. For guidance contact your State Water Board or Regional Office of the EPA."

2. Label Requirements for End-Use Products

a. Ingredient Statement

The ingredient statement for EPs must list the active ingredient as:

dimethyl-[2,2,2-trichloro-1-hydroxyethyl]
phosphonate..................................____%.

b. Precautionary Statements

Labels for all EPs containing trichlorfon must bear a statement reflecting the hazard to man and the environment [40 CFR 162.10].

- Based on data reviewed by the Agency, the following environmental hazards statements are required to appear on the EPs:

  All trichlorfon products intended for outdoor use must bear the following statement:

  > "This pesticide is toxic to fish and wildlife and is extremely toxic to aquatic invertebrates."

Additional precautionary statements are required as indicated below:

Trichlorfon products intended for direct applications to ponds:

> "Consult your State Fish and Game Agency before applying this product to public waters. Permits may be required before treating such waters."

Trichlorfon products intended for use in forestry:

> "Do not apply directly to water or wetlands not under forest canopy. Runoff and drift from treated areas may be hazardous to aquatic organisms in neighboring areas."

Trichlorfon products intended for outdoor uses other than direct applications to ponds or forestry:

> "Do not apply to water or wetlands. Runoff from treated areas may be hazardous to aquatic organisms in neighboring areas."

The Agency is currently considering various approaches to address the endangered species concerns for this and other chemicals. This standard may be amended to incorporate the results of this additional review.

- To avoid the possible misuse of trichlorfon in eating establishments the following statement is required for all EPs used in eating establishments.

  > "This product shall not be used in rooms or areas where food is either consumed or prepared."

- Bee precautionary language per PR Notice 68-19 is no longer required since the data indicates that trichlorfon has a low toxicity to bees.

- The reentry statement below must appear on all trichlorfon labels with directions for use on crops:

  > "Do not reenter treated fields within 24 hours unless protective clothing is worn."

  Refer to PR Notice 83-2 for additional information on reentry and worker protection labeling requirements.

H. TOLERANCE REASSESSMENT

The previously established tolerances for combined residues of trichlorfon and its cholinesterase-inhibiting metabolites are published in 40 CFR 561.190 and 40 CFR 180.198. A summary of these tolerances is presented in Table 1.

The data for trichlorfon residues in or on the following raw agricultural commodities are adequate to fill the residue data requirements:

> beets, blueberries; peanut hulls and vine hay; birdsfoot trefoil hay (including chaff); corn grain; fresh corn; corn forage and fodder, forage of barley, oats, and wheat; bananas; peanuts; and the fat, meat, and meat by-products of goats, horses, and sheep.

Sufficient residue data are not available to assess the adequacy of the trichlorfon tolerances for the following commodities (and their processed products, if applicable):

> carrots, sugar beets and tops, lettuce, Brussels sprouts, cabbage, cauliflower, collards, cowpeas, dried beans, lima beans, snap beans, bean vines, cowpea vines, lima bean vines and hay, peppers, tomatoes, pumpkins, citrus fruits and dried citrus pulp, barley grain and straw,

oat grain and straw, wheat grain and straw, pasture and rangeland grass forage and hay, alfalfa forage and hay, clover forage and hay, artichokes, cottonseed, flax seed and straw, safflower seed, cattle (fat, meat, and meat by-products), and milk.

Residue data are required for processed products of the following commodities to determine the necessity of food/feed additive tolerances:

citrus fruits; cottonseed; wheat grain; sugar beets; and tomatoes.

Residue data for tobacco are required to determine the human hazard associated with this trichlorfon use.

Poultry residue studies are required to determine the necessity of trichlorfon tolerances for poultry fat, meat, and meat byproducts; a tolerance for eggs is not required.

No group crop tolerances are appropriate at the present time.

Residue data and tolerance proposals must be submitted for the following raw agricultural commodities for which tolerances are not currently established, but intrastate registrations exist:

strawberries; watermelon; broccoli; kale; spinach; garlic; onions; radishes; rutabagas; celery; and turnips.

No new crop groupings can be established at this time because of extensive residue chemistry data gaps. Compatibility between Codex MRLs and U.S. tolerances will be assessed when data gaps specified in Table A have been submitted and evaluated.

The lack of adequate animal and plant metabolism studies precludes a determination of the trichlorfon residues of concern in plants and animals. Before the submission of additional residue data, it is imperative that the residues of concern be determined. The registrant is to conduct adequate plant and animal metabolism studies prior to generating residue data so that all the components of the residue (parent compound and metabolites) can be identified.

The previously established ADI for trichlorfon is 0.1250 mg/kg/day and the TMRC, based on the established tolerances for residues of trichlorfon as cited under 40 CFR 180.198, is 0.0627 mg/day assuming a 1.5 kg diet; the TMRC currently accounts for only 0.84% of the ADI. No adequate study currently supports the previously established ADI. A new ADI will be established when the chronic toxicity data requirements specified in Table A are satisfied.

TABLE I.
SUMMARY OF PRESENT TOLERANCES [a]

	Tolerances (ppm)			
Commodity	United States	Canada	Mexico	International Codex [g]
Alfalfa	60.0	-	60.0	-
Alfalfa, hay	90.0	-	90.0	-
Artichokes	0.1 (N)[b]	0.1 (N)	0.1 (N)	0.1
Apples	-	-	-	2.0
Bananas	2.0[c]	0.1 (N)	-	0.2
Barley, forage	50.0	-	-	-
Barley, grain	0.1 (N)	-	-	-
Barley, straw	1.0	-	-	-
Beans, dried	0.1 (N)	0.1 (N)	0.1 (N)	0.1
Beans, lima	12.0[d]	-	-	0.1
Beans, lima vine hay	12.0	-	-	-
Beans, lima vines	12.0	-	-	-
Beans, blackeyed	-	-	-	0.1
Beans, snap	0.1 (N)	-	-	-
Beans, vines	1.0	-	-	-
Beets	0.1 (N)	0.1 (N)	-	0.2
Beets, sugar	0.1 (N)	-	-	-
Beets, sugar tops	12.0	-	-	-
Birdsfoot trefoil, hay	90.0	-	-	-
Blueberries	0.1 (N)	0.1 (N)	-	-
Brussels sprouts	0.1 (N)	0.1 (N)	-	0.2
Cabbage	0.1 (N)	0.1 (N)	0.1 (N)	0.5
Carrots	0.1 (N)	0.1 (N)	-	-
Cattle fat	0.1 (N)	-	0.1 (N)	0.1
Cattle, mbyp[e]	0.1 (N)	-	-	-
Cattle, meat	0.1 (N)	-	0.1 (N)	0.1
Cattle, offal	-	-	-	0.1
Cauliflower	0.1 (N)	0.1 (N)	-	0.2
Celery	-	-	-	0.2
Cereal grains	-	0.1 (N)	-	0.1
Citrus fruit	0.1 (N)	-	0.1 (N)	0.1
Citrus (dry pulp)	2.5	-	2.5	-
Cherries	-	-	-	0.1
Chili peppers	-	-	0.1 (N)	-
Chickpeas	-	-	0.1 (N)	-
Clover	60.0	-	-	-
Clover hay	90.0	-	-	-
Collards	0.1 (N)	0.1 (N)	-	-
Corn, fodder	30.0	-	-	-
Corn, forage	30.0	-	30.0	-
Corn, fresh	0.1 (N)[f]	0.1 (N)	0.1 (N)	-
Corn, grain	0.1 (N)	0.1 (N)	0.1 (N)	-
Cottonseed	0.1 (N)	-	0.1 (N)	0.1
Cowpeas	0.1 (N)	-	-	0.1
Cowpeas, vines	1.0	-	-	-

TABLE I.
SUMMARY OF PRESENT TOLERANCES a/(continued)

	Tolerances (ppm)			
Commodity	United States	Canada	Mexico	International Codex g/
Flax, straw	1.0	-	-	-
Flaxseed	0.1 (N)	-	-	-
Goats, fat	0.1 (N)	-	-	-
Goats, mbyp	0.1 (N)	-	-	-
Goats, meat	0.1 (N)	-	-	-
Grapes	-	-	-	0.5
Grass, pasture	60.0	-	-	-
Grass, pasture hay	90.0	-	-	-
Grass, range	240.0	-	-	-
Grass, range, hay	240.0	-	-	-
Horses, fat	0.1 (N)	-	-	-
Horses, mbyp	0.1 (N)	-	-	-
Horses meat	0.1 (N)	-	-	-
Kale	0.1 (N)	0.1 (N)	-	0.2
Lettuce	0.1 (N)	0.1 (N)	0.1 (N)	0.5
Linseed	-	-	-	0.1
Milk	0.01 (N)	-	-	0.05
Mustard green	-	-	-	0.1
Oats, forage	50.0	-	-	-
Oats, grain	0.1 (N)	-	-	-
Oats, straw	1.0	-	-	-
Peaches	-	-	-	0.2
Peanuts	0.05 (N)	-	0.05	0.1
Peanuts, vine hay	4.0	-	-	-
Peanuts, vine hulls	4.0	-	4.0	-
Peppers	0.1 (N)	0.1 (N)	-	1.0
Pigs, carcass meat	-	-	-	0.1
Pigs, edible offal	-	-	-	0.1
Pigs, fat	-	-	-	0.1
Pumpkins	0.1 (N)	-	-	0.1
Radish	-	-	-	0.1
Rapeseed	-	0.1 (N)	-	0.1
Rutabagas	-	0.1 (N)	-	-
Safflower seed	0.1 (N)	-	0.1	0.1
Salisfy	-	0.1 (N)	-	-
Sheep, fat	0.1 (N)	-	-	-
Sheep, mbyp	0.1 (N)	-	-	-
Sheep, meat	0.1 (N)	-	-	-
Soya, beans	-	-	-	0.1
Squash	-	-	0.1 (N)	-
Spinach	-	0.1 (N)	-	0.5
Sugar beets	-	0.1 (N)	-	0.05

TABLE I.
SUMMARY OF PRESENT TOLERANCES [a] (continued)

	Tolerances (ppm)			
Commodity	United States	Canada	Mexico	International Codex[g]
Stawberries	-	-	-	1.0
Tomatoes	0.1 (N)	0.1 (N)	0.1 (N)	0.2
Turnips	-	0.1 (N)	-	0.1
Wheat, forage	50.0	-	50.0	-
Wheat, grain	0.1 (N)	-	0.1 (N)	-
Wheat, straw	1.0	-	1.0	-

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a/ Tolerance is based on residues of trichlorfon and its cholinesterase-inhibiting metabolites.

b/ (N) is neglibible residues

c/ NMT 0.2 ppm will be present after peel is removed.

d/ Reflecting 0.1 ppm (N) in or on shelled beans.

e/ MBYP = Meat byproducts

f/ Including sweet K + CWHR.

g/ International Codex "tolerances" are expressed as MRLs or maximum residue limits.

c057901 DIMETHYL (2,2,2-TRICHLORO-1-HYDROXYETHYL)PHOSPHONATE*

TYPE PESTICIDE: Insecticide

FORMULATIONS:
Tech (90%, 97%, 98%)
FI (80%, 82%)
D (3%, 5%, 8%)
G (0.4%, 0.92%, 1%, 3%, 3.5%, 4%, 5%, 6.2%)
P/T (5%, 37.8%, 90%)
WP/D (37.8%)
Impr (1%)
SC/L (4 lb/gal, 6 lb/gal, 40.5%)
SC/S (50%, 80%)
RTU (1.5 lb/gal, 8%)

GENERAL WARNINGS AND LIMITATIONS: Trichlorfon does not significantly affect beneficial insects (parasites, predators, and pollinators) especially when applied at the minimum recommended rates per acre. Trichlorphon is not specifically recommended for the control of aphids, cabbage loopers, or mites, but some suppression of these pests may result from listed dosages. To avoid plugging, use 50 mesh screens in sprayers when applying soluble concentrate/solid formulations. Do not use in conjunction with alkaline materials such as lime or lime sulfur, or with summer oils or dormant oils.

Definition of Terms:
**Computed from tablespoon/teaspoon dosage.
***Exact computation of actual dosage is not possible because of the lack of weight/volume information on the label. Extrapolation from other formulations reveals that the dosage from this label appears to fall within the range shown by formulations with known weight/volume ratios.
Claims for pest control limited to suppression of population are indicated by parenthesized pest name.

*trichlorfon
Dipterex
Dylox
Neguvon
trichlorphon
**covers single active ingredient labeling only

Issued: 3-22-82 III-057901-1
Provisional Update: 6-14-84

DIMETHYL (2,2,2-TRICHLORO-1-HYDROXYETHYL)PHOSPHONATE

	Site And Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
	AGRICULTURAL CROPS		
	General Warnings and Limitations: Do not apply to or allow to drift onto varieties of sorghum which are sensitive to phosphates as burning of sorghum or milo may occur. Injury to foliage and fruit of apples has been reported. For soluble concentrate/liquid formulations, apply per acre rates in a minimum of 1 gallon of water per acre by aircraft or ground equipment or apply undiluted by aircraft or ultra low volume ground equipment. For soluble concentrate/solid formulations, apply in sufficient water for thorough coverage by aircraft or ground equipment.		
/23001AA /28069AA	Alfalfa Alfalfa-Grass Mixture		60 ppm (fresh) 90 ppm (hay) No pregrazing or preharvest interval through 1 pound per acre of dilute spray formulations for foliar application. Do not make more than 3 applications per cutting. 3 day pregrazing or preharvest interval through 1 pound per acre of ultra low volume spray formulations for foliar application. Do not make more than 1 application per cutting. 7 day pregrazing or preharvest interval through 1 pound per acre of dust formulations for foliar application. Do not make more than 1 application per cutting. 14 day pregrazing or preharvest interval through 1 pound per acre of bait formulations for broadcast soil application. Do not make more than 1 application per cutting. Use patterns for spray formulations include alfalfa in mixed stands with grasses.
ITBJADA	Alfalfa caterpillar	0.375-0.5 lb/A (4-6 lb/gal SC/L) (40.5% SC/L)*** (50-80% SC/S)	Foliar application. May be applied by aircraft. Some 4 pounds per gallon soluble concentrate/liquid formulations may be applied undiluted as an ultra low volume spray by aircraft or ground equipment.

DIMETHYL (2,2,2-TRICHLORO-1-HYDROXYETHYL)PHOSPHONATE

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
	Alfalfa cluster (continued)		
ITBMBUA	Alfalfa webworm	0.25-1 lb/A (4-6 lb/gal SC/L) (40.5% SC/L)*** (50-80% SC/S)	
IQAMABA ITBCC[illegible]A IQAMARA IQAQAAA	Alfalfa plant bug Armyworm Lygus bugs (including tarnished plant bug) Stink bugs	1 lb/A (4-6 lb/gal SC/L) (40.5% SC/L)*** (50-80% SC/S)	
ITBCCNA IRAFAAA ITBCCBA	Beet armyworm Leafhoppers Variegated cutworm	0.5-1 lb/A (4-6 lb/gal SC/L) (40.5% SC/L)*** (50-80% SC/S)	
ITBCCRA	Western yellow-striped armyworm	0.5 lb/A (4-6 lb/gal SC/L) (40.5% SC/L)*** (50-80% SC/S)	
/23001AA	(Alfalfa)		
ITBJADA ITBMBUA ITBCCNA IQAMARA IQAQAAA ITBCCBA ITBCCRA	Alfalfa caterpillar Alfalfa webworm Beet armyworm Lygus bugs (including tarnished plant bug) Stink bugs Variegated cutworm Western yellow-striped armyworm	0.9-1 lb/A (3-8% D)	Foliar application. May be applied by aircraft.
ITBCCFA ITBCCNA IVAHAAA ITBCABA	Armyworm Beet armyworm Crickets (including mole crickets) Cutworms (climbing and surface feeding including	1 lb/A (5% D) (3-5% G) [Bait]	Broadcast soil application. May be applied by aircraft. For fields with previous infestations or suspected infestations of cutworms, apply prior to or just after planting.

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
	Alfalfa cluster (continued)		
	Pest list continued from previous page.		
	black cutworm, granulate cutworm, variegated cutworm, western bean cutworm)		
ITABACA	Saltmarsh caterpillar		
ITBCCRA	Western yellow-striped armyworm		
ITBCCFA	Armyworm	1 lb/A (5% P/T) [Bait]	Broadcast soil application. Make 1 application per cutting.
/23001BA /23003BA	Alfalfa (seed crop) Clover (seed crop)		90 ppm (hay) 7 day preharvest interval through 1.5 pounds per acre for foliar application. Do not cut green crop for feed or forage. Chaff may be used for feed or forage.
ITBCCFA IQAMARA IQAQAAA ITBCCBA	Armyworm Lygus bugs Stink bugs Variegated cutworm	1-1.5 lb/A (4-6 lb/gal SC/L) (40.5% SC/L)*** (50-80% SC/S)	Foliar application to seed crop. May be applied by aircraft.
	Alfalfa-Grass Mixture	See Alfalfa cluster.	
/13018AA	Artichoke (Globe)		0.1 ppm 14 day preharvest interval through 2.5 pounds per acre for foliar application.
ITBLABA	Artichoke plume moth	2-2.5 lb/A (5-8% D)	Foliar application. May be applied by aircraft.

DIMETHYL (2,2,2-TRICHLORO-1-HYDROXYETHYL)PHOSPHONATE

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
/06002AA	Banana		2 ppm 0.2 ppm (in pulp after peel is removed) No preharvest interval through 0.5 pound per acre for foliar application.
ITAJACA	Banana caterpillar	0.4-0.5 lb/A (80% SC/S)	Foliar application. Repeat at 14 day intervals as needed.
/28063AA /28009AA /28062AA /28065AA	Barley Flax Oats Wheat		0.1 ppm (grain and flaxseed) 1 ppm (straw) 50 ppm (barley, oats and wheat forage) 21 day preharvest interval through 1 pound per acre for foliar application or soil application (broadcast). For spray formulations, do not make more than 3 applications during the growing season. Applications may be made without removal of livestock. For bait formulations, do not graze treated fields. Do not feed treated straw to dairy or meat animals.
ITBCCFA IVAHAAA ITABACA ITBCABA	Armyworm Crickets Saltmarsh caterpillar Cutworms (climbing and surface feeding)	1 lb/A (5% D) (4-5% G) [Bait]	Broadcast soil application. May be applied by aircraft. For fields with previous infestations or suspected infestations of cutworms, apply prior to or just after planting.
ITBCCFA ITBCCNA ITBMBWA ITBCCBA	Armyworm Beet armyworm Beet webworm Variegated cutworm	0.5-1 lb/A (4-6 lb/gal SC/L) (40.5% SC/L)*** (50-80% SC/S)	Foliar application. May be applied by aircraft.
ITBCBVA ITBWAFA	Bertha armyworm Diamondback moth	1 lb/A (4-6 lb/gal SC/L) (40.5% SC/L)*** (50-80% SC/S)	

DIMETHYL (2,2,2-TRICHLORO-1-HYDROXYETHYL)PHOSPHONATE

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
/15001AA /15003AA /15025AA	Beans, Dried-Type Beans, Succulent		0.1 ppm (beans, dried and snap) 1 ppm (vines) 14 day preharvest interval through 1.5 pounds per acre for foliar application or soil application (band or broadcast). Do not feed treated vines to dairy or meat animals.
ITBCCFA IOAAAEA IQAMARA INAPAFA IQAQAAA ITBCCBA	Armyworm Dipterous leaf-miners Lygus bugs Mexican bean beetle Stink bugs Variegated cutworm	1-1.5 lb/A (3-8% D) (4-6 lb/gal SC/L) (40.5% SC/L)*** (50-80% SC/S)	Foliar application. May be applied by aircraft.
ITBCBTA	Western bean cutworm	1-1.5 lb/A (3-8% D) or 0.5-1 lb/A (4-6 lb/gal SC/L) (40.5% SC/L)*** (50-80% SC/S)	
ITBCCFA ITBCCNA IVAHAAA ITBCBAA INBUAAA ITABACA ITBCCRA	Armyworm Beet armyworm Crickets (including mole crickets) Cutworms (climbing and surface feeding including black cutworm, granulate cutworm, variegated cutworm, western bean cutworm) Darkling beetles Saltmarsh caterpillar Western yellow-striped armyworm	1.5 lb/A (5% D) (3.5-5% G) [Bait]	Soil application (band). Apply over the row and around base of plants. Broadcast soil application. May be applied by aircraft. For fields with previous infestations or suspected infestations of cutworms, apply prior to or just after planting.

DIMETHYL (2,2,2-TRICHLORO-1-HYDROXYETHYL)PHOSPHONATE

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
/15025AA	Beans, Lima		12 ppm (beans [reflecting 0.1 ppm in or on the shelled beans], bean vines, bean vine hay) 14 day preharvest interval through 1.5 pounds per acre for foliar application. 30 day preharvest interval through 1.5 pounds per acre of bait formulations for soil application (band or broadcast). Do not make more than 2 applications during the growing season.
		Refer to Beans, Dried-Type cluster.	
/15025CA	Beans, Lima (greenhouse research crops)		N.F.
/15003CA	Beans, Succulent (greenhouse research crops)		
/14001CA	Beets (root crop) (greenhouse research crops)		
/28005CA	Corn, Field (greenhouse research crops)		
/15005CA	Corn, Sweet (greenhouse research crops)		
/10010CA	Cucumbers (greenhouse research crops)		
/28016CA	Peas (greenhouse research crops)		
/28017CA	Peppers (greenhouse research crops)		
/13024CA	Spinach (greenhouse research crops)		
			This use only occurs on Special Local Need (24(C)) labeling and has not been included in this entry. Refer to appropriate labeling for use information and limitations.
	Beans, Succulent	See Beans, Dried-Type cluster.	

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
/14001AA	Beets		0.1 ppm 28 day preharvest interval through 1.5 pounds per acre for foliar application or soil application (band or broadcast). Do not harvest tops for food.
ITBMBUA	Alfalfa webworm	1-1.5 lb/A (3-8% D)	Foliar application. May be applied by aircraft.
ITBCCNA	Beet armyworm		
ITBMBWA	Beet webworm		
IOAAAEA	Dipterous leafminers		
IQAMARA	Lygus bugs		
ITABACA	Saltmarsh caterpillar		
ITBCCBA	Variegated cutworm		
ITBMBUA	Alfalfa webworm	1 lb/A 6 lb/gal SC/L) (50-80% SC/S)	
ITBMBWA	Beet webworm		
IOAAAEA	Dipterous leafminer		
ITABACA	Saltmarsh caterpillar		
ITBCCNA	Beet armyworm	1-1.5 lb/A (6 lb/gal SC/L) (50-80% SC/S)	
IQAMARA	Lygus bugs		
ITBCCBA	Variegated cutworm	0.5-1 lb/A (6 lb/gal SC/L) (50-80% SC/S)	

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
	Beets (continued)		
ITBCCFA IVAHAAA ITABACA ITBCCXA	Armyworm Crickets Saltmarsh caterpillar Surface feeding cutworms	1.5 lb/A (5% D) (3-5% G) [Bait]	Soil application (band). Apply over the row and around base of plants. Broadcast soil application. May be applied by aircraft. For fields with previous infestations or suspected infestations of cutworms, apply prior to or just after planting.
	Beets (root crop) (greenhouse research crops)	See Bean, Lima (greenhouse research crops) cluster.	
/23011BA	Birdsfoot trefoil (seed crop)		90 ppm (hay) This use only occurs on Special Local Need (24(C)) labeling and has not been included in this entry. Refer to appropriate labeling for use information and limitations.
/01009AA	Blueberry		0.1 (N) ppm This is a new use established subsequent to the development of this entry. Refer to appropriate labeling for use information and limitations.
/13006AA /13007AA /13008AA	Brussels Sprouts Cabbage Cauliflower		0.1 ppm 21 day preharvest interval through 1 pound per acre for foliar application or soil application (band or broadcast).
ITBWAFA ITBJAHA ITBCCBA ITBCCRA	Diamondback moth Imported cabbageworm Variegated cutworm Western yellow-striped armyworm	1 lb/A (3-8% D)	Foliar application. May be applied by aircraft.

DIMETHYL (2,2,2-TRICHLORO-1-HYDROXYETHYL)PHOSPHONATE

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
	Brussels Sprouts cluster (continued)		
ITBJAHA	Imported cabbageworm	0.5-1 lb/A (6 lb/gal SC/L) (50-80% SC/S)	
ITBCCBA	Variegated cutworm		
ITBCCRA	Western yellow-striped armyworm	0.5 lb/A (6 lb/gal SC/L) (50-80% SC/S)	
ITBCCFA	Armyworm	1 lb/A (5% D) (3-5% G) [Bait]	Soil application (band). Apply over the row and around base of plants. Broadcast soil application. May be applied by aircraft. For fields with previous infestations or suspected infestations of cutworms, apply prior to or just after planting.
ITBCCNA	Beet armyworm		
IVAHAAA	Crickets (including mole crickets)		
ITBCABA	Cutworms (climbing and surface feeding including black cutworm, granulate cutworm, variegated cutworm, western bean cutworm)		
ITABACA	Saltmarsh caterpillar		
ITBCCRA	Western yellow-striped armyworm		

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
/14003AA	Carrot		0.1 ppm 28 day preharvest interval through 1.5 pounds per acre for foliar application. Do not harvest tops for food or feed.
ITBCCNA	Beet armyworm	1-1.5 lb/A (3-5% D)	Foliar application. May be applied by aircraft.
IOAAAEA	Dipterous leafminers		
IQAMARA	Lygus bugs		
ITABACA	Saltmarsh caterpillar		
ITBCCBA	Variegated cutworm		
ITBCCRA	Western yellowstriped armyworm		
ITBCCNA	Beet armyworm	1-1.5 lb/A 6 lb/gal SC/L) (50-80% SC/S)	
IQAMARA	Lygus bugs		
IOAAAEA	Dipterous leafminers	1 lb/A 6 lb/gal SC/L) (50-80% SC/S)	
ITBCCBA	Variegated cutworm	0.5-1 lb/A (6 lb/gal SC/L) (50-80% SC/S)	
ITABACA	Saltmarsh caterpillar	1.5 lb/A (6 lb/gal SC/L) (50-80% SC/S)	

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
	Carrot (continued)		
ITBCCRA	Western yellow-striped armyworm	0.5 lb/A (6 lb/gal SC/L) (50-80% SC/S)	
	Cauliflower	See Brussels Sprouts cluster.	
/02000AA	Citrus Fruits		0.1 ppm 2.5 ppm (in dried citrus pulp) 7 day preharvest interval through 4 pounds per acre for foliar application. Apply only 1 application by aircraft. 21 day preharvest interval through 4 pounds per acre for foliar application. Do not make more than 3 applications during the fruiting period, 1 by aircraft and not more than 2 additional applications by ground equipment. Apply in a minimum of 1 gallon of water per acre by aircraft or in 200 to 250 gallons of water per acre by ground equipment.
ITAPAJA ITBCCUA ITANAXA ITBUALA	Avocado leafroller Citrus cutworm Citrus looper Orange tortrix	4 lb/A (50-80% SC/S)	Use limited to CA. Foliar application.
ITBHAFA ITBUAGA ITBUBCA	Black swallowtail Fruittree leafroller Omnivorous leafroller	2 lb/A (50-80% SC/S)	

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
/23003AA /28079AA	Clover Clover-Grass Mixture		60 ppm (fresh) 90 ppm (hay) No pregrazing or preharvest interval through 1 pound per acre of spray formulations for foliar application. Do not make more than 3 applications per cutting. 7 day pregrazing or preharvest interval through 1 pound per acre of dust formulations for foliar application. Use patterns for spray formulations include clover in mixed stands with grasses.
ITBJADA	Alfalfa caterpillar	0.375-0.5 lb/A (4-6 lb/gal SC/L) (40.5% SC/L)*** (50-80% SC/S)	Foliar application. May be applied by aircraft.
ITBMBUA	Alfalfa webworm	0.25-1 lb/A (4-6 lb/gal SC/L) (40.5% SC/L)*** (50-80% SC/S)	
ITBCCFA	Armyworm	1 lb/A (4-6 lb/gal SC/L) (40.5% SC/L)*** (50-80% SC/S)	
IQAMABA	Alfalfa plant bug		
IQAMARA	Lygus bugs (including tarnished plant bug)		
IQAQAAA	Stink bugs		
ITBCCNA	Beet armyworm	0.5-1 lb/A (4-6 lb/gal SC/L) (40.5% SC/L)*** (50-80% SC/S)	
IRAFAAA	Leafhoppers		
ITBCCBA	Variegated cutworm		
ITBCCRA	Western yellow-striped armyworm	0.5 lb/A (4-6 lb/gal SC/L) (40.5% SC/L)*** (50-80% SC/S)	

DIMETHYL (2,2,2-TRICHLORO-1-HYDROXYETHYL)PHOSPHONATE

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
	Clover cluster (continued)		
/23003AA	(Clover)		
ITBJADA	Alfalfa caterpillar	1 lb/A (5-8% D)	Foliar application. May be applied by aircraft.
ITBMBUA	Alfalfa webworm		
ITBCCNA	Beet armyworm		
IQAMARA	Lygus bugs (including tarnished plant bug)		
IQAQAAA	Stink bugs		
ITBCCBA	Variegated cutworm		
ITBCCRA	Western yellow-striped armyworm		
ITBCCFA	Armyworm	1 lb/A (5% P/T) [Bait]	Broadcast soil application. Make 1 application per cutting.
	Clover (seed crop)	See Alfalfa (seed crop) cluster.	
	Clover-Grass Mixture	See Clover cluster.	
/13009AA	Collards		0.1 ppm
/13020AA	Lettuce		28 day preharvest interval through 1 pound per acre for foliar application or soil application (band or broadcast). For lettuce, do not apply after heads begin to form.
ITBCCFA	Armyworm	1 lb/A (3-8% D) (6 lb/gal SC/L) (50-80% SC/S)	Foliar application. May be applied by aircraft.
ITBMBWA	Beet webworm		
ITBWAFA	Diamondback moth		
IOAAAEA	Dipterous leafminers		
ITABACA	Saltmarsh caterpillar		
IMOAAAA	Thrips	1 lb/A (3-8% D) or 0.5-1 lb/A (6 lb/gal SC/L) (50-80% SC/S)	
ITBCCBA	Variegated cutworm		

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
	Collards cluster (continued)		
ITBCCFA	Armyworm	1-1.5 lb/A	Soil application (band). Apply over the row and around base of plants.
ITBCCNA	Beet armyworm	(5% D)	
IVAHAAA	Crickets (including mole crickets)	(3-5% G) [Bait]	Broadcast soil application. May be applied by aircraft. For fields with previous infestations or suspected infestations of cutworms, apply prior to or just after planting.
ITBCABA	Cutworms (climbing and surface feeding including black cutworm, granulate cutworm, variegated cutworm, western bean cutworm)		
INBUAAA	Darkling beetles		
ITABACA	Saltmarsh caterpillar		
ITBCCRA	Western yellowstriped armyworm		
/28006AA	Corn, Field		0.1 ppm (corn grain including popcorn, fresh corn including sweet corn [kernels plus cob with husk removed]) 30 ppm (fodder, forage) No preharvest interval through 1 pound per acre of spray formulations for foliar and soil applications. Do not make more than 3 applications during the growing season. 28 day preharvest interval through 1 pound per acre of 80 percent soluble concentrate/solid formulation for food, feed, or ensilage for foliar and soil applications. 40 day preharvest interval through 1 pound per acre of bait formulations for feed, food, or ensilage for soil application (band or broadcast). Do not make more than 1 application during the growing season.
/15004AA	Corn, Pop		
/15005AA	Corn, Sweet		

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
	Corn, Field cluster (continued)		
ITBCCFA	Armyworm	1 lb/A (5% D) (3-5% G) [Bait]	Soil application (band). Apply over the row and around base of plants. Broadcast soil application. May be applied by aircraft. For fields with previous infestations or suspected infestations of cutworms, apply prior to or just after planting.
IVAHAAA	Crickets		
ITBCABA	Cutworms (climbing and surface feeding)		
INBUAAA	Darkling beetles		
ITABACA	Saltmarsh caterpillar		
ITBCCFA	Armyworm	0.5-1 lb/A (4-6 lb/gal SC/L) (40.5% SC/L)*** (50-80% SC/S)	Foliar and soil application. For early applications, when plants are 3 to 12 inches high, direct spray to lower portion of plants and to the soil around the base of plants. Later applications may be made as full coverage sprays.
ITBCABA	Cutworms		
	Corn, Field (greenhouse research crops)	See Bean, Lima (greenhouse research crops) cluster.	
	Corn, Sweet (greenhouse research crops)	See Bean, Lima (greenhouse research crops) cluster.	
/28007AA	Cotton		0.1 ppm (cottonseed) 7 day preharvest interval through 1.5 pounds per acre for foliar application or soil application (band or broadcast). 14 day pregrazing interval through 1.5 pounds per acre for foliar application or soil application (band or broadcast). May cause marginal leaf burn. Injury may occur if application is made while foliage is wet.
ITBCCNA	Beet armyworm	0.9-1.5 lb/A (3-8% D)	Foliar application. May be applied by aircraft. For beet armyworm, cotton leafworm, and western yellowstriped armyworm, apply the lower rate. For other pests, apply the range.
IQAMBFA	Black cotton fleahopper complex		
IQAMAYA	Cotton fleahopper		
ITAYAHA	Cotton leafperforator		
ITBCAOA	Cotton leafworm		

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
	Cotton (continued)		
	Pest list continued from previous page.		
INBUAAA	Darkling beetles		
IMAAAEA	Leafrollers		
IQAMARA	Lygus bugs		
ITABACA	Saltmarsh caterpillar		
IRAFALA	Southern garden leafhopper		
IQAQAAA	Stink bugs		
ITBCCRA	Western yellow-striped armyworm		
ITBCCFA	Armyworm	1.5 lb/A (5% D) (3-5% G) [Bait]	Soil application (band). Apply over the row and around base of plants. Broadcast soil application. May be applied by aircraft. For fields with previous infestations or suspected infestations of cutworms, apply prior to or just after planting.
ITBCCNA	Beet armyworm		
IVAHAAA	Crickets (including mole crickets)		
ITBCABA	Cutworms (climbing and surface feeding including black cutworm, granulate cutworm, variegated cutworm, western bean cutworm)		
ITABACA	Saltmarsh caterpillar		
ITBCCRA	Western yellow-striped armyworm		
ITBCCNA	Beet armyworm	1 lb/A (4 lb/gal SC/L) (40.5% SC/L)*** (50-80% SC/S)	Foliar application. May be applied by aircraft. For cotton fleahopper, apply lower rate for light to moderate infestation. Higher rates may be required if heavy infestation or migration occurs.
IRAFALA	Southern garden leafhopper		
IQAMBFA	Black cotton fleahopper complex	1-1.5 lb/A (4 lb/gal SC/L) (40.5% SC/L)*** (50-80% SC/S)	
ITAYAHA	Cotton leafperforator		
IMAAAEA	Leafrollers		
IQAMARA	Lygus bugs		
IQAQAAA	Stink bugs		

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
	Cotton (continued)		
IQAMAYA	Cotton fleahopper	0.25-1 lb/A (4 lb/gal SC/L) (40.5% SC/L)*** (50-80% SC/S)	
ITBCAOA INBUAAA ITBCCRA	Cotton leafworm Darkling beetles Western yellow-striped armyworm	0.5-1 lb/A (4 lb/gal SC/L) (40.5% SC/L)*** (50-80% SC/S)	
ITABACA	Saltmarsh caterpillar	1.5 lb/A (4 lb/gal SC/L) (40.5% SC/L)*** (50-80% SC/S)	
IQAMAYA IQAMARA	Cotton fleahopper Lygus bugs	0.25-0.5 lb/A (4 lb/gal SC/L)	Ultra low volume foliar application. Apply by aircraft or ground equipment.
	Cucumbers (greenhouse research crops)	See Bean, Lima (greenhouse research crops) cluster.	
/28049AA	**Field Crops**		N.F.
/28052AA	**Truck Crops**		Applications should be made to the soil, away from, and not in contact with the crop.
ITBCCFA IVAHAAA ITABACA ITBCCXA	Armyworm (Crickets) Saltmarsh caterpillar Surface feeding cutworms	7.5 lb/ 1,000 ft (5% D) (4-5% G)	Soil application to field borders (band). To control migrating caterpillars, place a band 6 inches wide and 0.125 to 0.25 inch deep around the field to be protected. Use in conjunction with an aluminum or fiber strip barrier.
	Flax	See Barley cluster.	
	Lettuce	See Collards cluster.	
	Oats	See Barley cluster.	

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
/23035AA /28045AA	Pastures (grass)		60 ppm (fresh) 90 ppm (hay) No preharvest interval through 1 pound per acre for foliar application. Do not make more than 3 applications per cutting or per growing season if crop is not cut for hay. No preharvest interval through 1 pound per acre for ultra low volume application. Do not make more than 1 application per cutting if crop is not cut for hay, except that a second application may be made at 0.25 to 0.5 pound per acre, if needed. Do not apply more than a total of 1 pound per acre in a single growing season on crops not cut for hay. Applications may be made without removal of grazing livestock.
ITBCCFA ITBCCOA	Armyworm Fall armyworm	0.25-1 lb/A (4 lb/gal SC/L)	Foliar application. Dosage recommended for Southeast and South Central States. May be applied by aircraft. Apply higher rate when infestation is heavy and/or the larvae are in the late instar stages of growth.
ITBCCFA ITBCCOA IQAMAAA	Armyworm Fall armyworm Plant bugs	1 lb/A (4 lb/gal SC/L) (50-80% SC/S)	Foliar application. May be applied by aircraft. Some 4 pounds per gallon soluble concentrate/liquid formulations may be applied undiluted as an ultra low volume spray by aircraft or ground equipment.
IRAFAAA ITBNAJA	Leafhoppers Range caterpillar	0.5-1 lb/A (4 lb/gal SC/L) (50-80% SC/S)	
ITBNAJC	Range caterpillar (larvae)	0.25-0.5 lb/A (4 lb/gal SC/L)	Use limited to NM. Foliar application. May be applied by aircraft. May be applied undiluted as an ultra low volume spray by aircraft or ground equipment. Apply during first through third instars only.

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
/28015AA	Peanuts		0.05 ppm (peanuts) 4 ppm (peanut vine hay and hulls) No preharvest interval through 1 pound per acre for soil application (band or broadcast). Do not make more than 3 applications before digging. One additional application may be made between digging and harvest.
ITBCCFA	Armyworm	1 lb/A (5% D) (4-5% G) [Bait]	Soil application (band). Apply over the row and around base of plants. Broadcast soil application. May be applied by aircraft. For fields with previous infestations or suspected infestations of cutworms, apply prior to or just after planting.
ITBCCNA	Beet armyworm		
IVAHAAA	Crickets (including mole crickets)		
ITBCABA	Cutworms (climbing and surface feeding including black cutworm, granulate cutworm, variegated cutworm, western bean cutworm)		
ITABACA	Saltmarsh caterpillar		
ITBCCRA	Western yellow-striped armyworm		
/15008AA	Peas, Field (blackeyed peas, cowpeas, crowder peas, and southern peas)		0.1 ppm (cowpeas) 1 ppm (vines) 14 day preharvest interval through 1.5 pounds per acre for foliar application or soil application (band or broadcast). Do not make more than 2 applications during the growing season.
ITBCCFA	Armyworm	1-1.5 lb/A (3-8% D) (4-6 lb/gal SC/L) (40.5% SC/L)*** (50-80% SC/S)	Foliar application. May be applied by aircraft.
IOAAAEA	Dipterous leafminers		
ITBJAHA	Imported cabbageworm		
IQAMARA	Lygus bugs		
INAPAFA	Mexican bean beetle		
IQAQAAA	Stink bugs		
ITBCCBA	Variegated cutworm		
ITBCBTA	Western bean cutworm		

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
	Peas, Field (blackeyed peas, cowpeas, crowder peas, and southern peas) (continued)		
ITABACA	Saltmarsh caterpillar	1.5 lb/A (6 lb/gal SC/L)	
ITBCCFA	Armyworm	1-1.5 lb/A	Soil application (band). Apply over the row and around base of plants.
ITBCCNA	Beet armyworm	(5% D)	
IVAHAAA	Crickets (including mole crickets)	(4-5% G) [Bait]	Broadcast soil application. May be applied by aircraft. For fields with previous infestations or suspected infestations of cutworms, apply prior to or just after planting.
ITBCABA	Cutworms (climbing and surface feeding including black cutworm, granulate cutworm, variegated cutworm, western bean cutworm)		
ITABACA	Saltmarsh caterpillar		
ITBCCRA	Western yellow-striped armyworm		
	Peas (greenhouse research crops)	See Bean, Lima (greenhouse research crops) cluster.	
/28017AA	Peppers		0.1 ppm 21 day preharvest interval through 1 pound per acre of spray or bait formulations or through 1.25 pounds per acre of dust formulations of foliar application or soil application (band or broadcast).
IOAAAEA	Dipterous leafminers	1-1.25 lb/A (3-8% D)	Foliar application. May be applied by aircraft.
IOBMATA	Pepper maggot	or	
IOABADA	Serpentine leafminer complex	1 lb/A (6 lb/gal SC/L) (50-80% SC/S)	
ITBCCFA	Armyworm	1 lb/A	Soil application (band). Apply over the row and around base of plants.
IVAHAAA	Crickets	(5% D)	
INBUAAA	Darkling beetles	(3.5-5% G)	
ITABACA	Saltmarsh caterpillar	[Bait]	Broadcast soil application. May be applied by aircraft. For fields

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
	Peppers (continued)		
ITBCCXA	Surface feeding cutworms		with previous infestations or suspected infestations of surface feeding cutworms, apply prior to or just after planting.
	Peppers (greenhouse research crops)	See Bean, Lima (greenhouse research crops) cluster.	
/10011AA	Pumpkin		0.1 ppm 14 day preharvest interval through 1 pound per acre of spray or bait formulations or 1.5 pounds per acre of dust formulation for foliar application or soil application (band or broadcast). Do not make more than 1 application during the growing season.
IQAGAFA ITBCCBA	Squash bug Variegated cutworm	1.25-1.5 lb/A (3-8% D)	Foliar application. May be applied by aircraft.
IQAGAFA	Squash bug	1 lb/A (6 lb/gal SC/L) (50-80% SC/S)	
ITBCCBA	Variegated cutworm	0.5-1 lb/A (6 lb/gal SC/L) (50-80% SC/S)	
ITBCCFA ITBCCNA IVAHAAA ITBCABA ITABACA	Armyworm Beet armyworm Crickets (including mole crickets) Cutworms (climbing and surface feeding including black cutworm, granulate cutworm, variegated cutworm, western bean cutworm) Saltmarsh caterpillar	1 lb/A (5% D) (4-5% G) [Bait]	Soil application (band). Apply over the row and around base of plants. Broadcast soil application. May be applied by aircraft. For fields with previous infestations or suspected infestations of cutworms, apply prior to or just after planting.

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
	Pumpkin (continued)		
	Pest list continued from previous page.		
ITBCCRA	Western yellow-striped armyworm		
/28045AA	Rangeland (grass)		240 ppm (forage and hay) No preharvest interval through 0.5 pound per acre of ultra low volume liquid formulations in oil for foliar application. Do not make more than 3 applications during growing season. No preharvest interval through 1 pound per acre of dilute spray or ultra low volume formulations for foliar application. For dilute sprays do not make more than 3 applications per cutting or per growing season if grass is not cut for hay. For ultra low volume sprays do not make more than 1 application per cutting or per growing season if grass is not cut for hay. Applications may be made without removal of livestock.
ITBNAJA	Range caterpillar	0.25-0.5 lb/A (1.5 lb/gal RTU)	Ultra low volume foliar application. Apply by aircraft. Apply to actively feeding and mobile larvae in the third through fifth instars. A second application may be made if needed.

Also refer to Pasture (grass) for additional pest and use information.

DIMETHYL (2,2,2-TRICHLORO-1-HYDROXYETHYL)PHOSPHONATE

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
/28076AA	Safflower		0.1 ppm (seed) Apply up to the onset of bloom through 1.5 pounds per acre for foliar application or soil application (band or broadcast). Do not make more than 2 applications during the growing season. Do not apply after onset of bloom.
ITBCCFA IQAMARA IMOAAAA ITBCCBA	Armyworm Lygus bugs Thrips Variegated cutworm	1.25-1.5 lb/A (3-8% D) or 1-1.5 lb/A (50-80% SC/S)	Foliar application. May be applied by aircraft. Apply approximately 14 days prior to bloom and repeat at onset of bloom.
ITBCCFA IVAHAAA ITABACA ITBCCXA	Armyworm Crickets Saltmarsh caterpillar Surface feeding cutworms	1.5 lb/A (5% D) (4-5% G) [Bait]	Soil application (band). Apply over the row and around base of plants. Broadcast soil application. May be applied by aircraft. For fields with previous infestations or suspected infestations of surface feeding cutworms, apply prior to or just after planting.
/28023BA	Soybeans (seed crop)		N.F. Do not pasture or harvest treated crop for feed, food, forage, or oil.
ITBCCFA ITBCCNA IVAHAAA ITBCABA ITABACA ITBCCRA	Armyworm Beet armyworm Crickets (including mole crickets) Cutworms (climbing and surface feeding including black cutworm, granulate cutworm, variegated cutworm, western bean cutworm) Saltmarsh caterpillar Western yellow-striped armyworm	1-1.5 lb/A (5% D) (4-5% G) [Bait]	Soil application (band). Apply over the row and around base of plants. Broadcast soil application. May be applied by aircraft. For fields with previous infestations or suspected infestations of cutworms, apply prior to or just after planting.
ITBCCFA IOAAAEA ITBJAHA	Armyworm Dipterous leafminer Imported cabbage-	1.25-1.75 lb/A (5% D) or	Foliar application. May be applied by aircraft.

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
	Soybeans (seed crop) (continued)		
	worm	1-1.5 lb/A (6 lb/gal SC/L) (50-80% SC/S)	
IQAMARA	Lygus bugs		
IQAQAAA	Stink bugs		
ITBCCBA	Variegated cutworm		
	Spinach (greenhouse research crops)	See Bean, Lima (greenhouse research crops) cluster.	
/28020AA	Sugar Beets		0.1 ppm 12 ppm (tops) 14 day preharvest interval through 1.5 pounds per acre for foliar application or soil application (band or broadcast) if tops are not to be fed to livestock. 28 day preharvest interval through 1.5 pounds per acre for foliar application or soil application (band or broadcast) if tops are to be fed to livestock.
ITBMBUA	Alfalfa webworm	1-1.5 lb/A (3-8% D)	Foliar application. May be applied by aircraft.
ITBCCNA	Beet armyworm		
ITBMBWA	Beet webworm		
IOAAAEA	Dipterous leaf-miners		
ITABACA	Saltmarsh caterpillar		
ITBCCBA	Variegated cutworm		
ITBMBUA	Alfalfa webworm	1-1.5 lb/A (4-6 lb/gal SC/L) (40.5% SC/L)*** (50-80% SC/S)	
ITBCCNA	Beet armyworm		
ITABACA	Saltmarsh caterpillar		
ITBMBWA	Beet webworm	0.5-1 lb/A (4-6 lb/gal SC/L) (40.5% SC/L)*** (50-80% SC/S)	
ITBCCBA	Variegated cutworm		

DIMETHYL (2,2,2-TRICHLORO-1-HYDROXYETHYL)PHOSPHONATE

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
	Sugar Beets (continued)		
IOAAAEA	Dipterous leaf-miners	1 lb/A (4-6 lb/gal SC/L) (40.5% SC/L)*** (50-80% SC/S)	
ITBCCFA IVAHAAA ITBCABA INBUAAA ITABACA	Armyworm Crickets Cutworms (climbing and surface feeding including black cutworm, granulate cut- Darkling beetles Saltmarsh caterpillar	1-1.5 lb/A (5% D) (3-5% G) [Bait]	Soil application (band). Apply over the row and around base of plants. Broadcast soil application. May be applied by aircraft. For fields with previous infestations or suspected infestations of cutworms, apply prior to or just after planting.
ITBCCXA	Surface feeding cutworms	1 lb/A (5% P/T) [Bait]	Broadcast soil application.
/26003AA	Tobacco		N.F. 3 day preharvest interval through 1 pound per acre of spray formulations or 1.5 pounds per acre of dust and granular formulations for foliar application. Do not apply bait formulations after plants are 2 feet tall.
ITBCBNA ITBRAKA	Tobacco budworm Tobacco hornworm	1-1.5 lb/A (5-8% D) or 0.4-0.6 lb/A (4% G) or 1 lb/A (50-80% SC/S)	Foliar application. For budworm, apply directly into bud. Repeat as needed.
ITBCCFA ITBCCNA IVAHAAA ITBCABA	Armyworm Beet armyworm Crickets (including mole crickets) Cutworms (climbing and surface feeding including black cutworm,	1 lb/A (5% D) (4-5% G) [Bait]	Soil application (band). Apply over the row and around base of plants. Broadcast soil application. May be applied by aircraft. For fields with previous infestations or suspected infestations of cutworms, apply prior to or just after planting.

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
	Tobacco (continued)		
	Pest list continued from previous page.		
	granulate cutworm, variegated cutworm, western bean cutworm)		
ITABACA	Saltmarsh caterpillar		
ITBCCRA	Western yellow-striped armyworm		
/26003DA	Tobacco (to be transplanted)		
INBPALC	Green june beetle (larvae)	0.5 lb/ 100 gal/ 100 sq.yd (50-80% SC/S)	Soil application. Apply to uprooted areas of plant beds.
/11005AA	Tomato		0.1 ppm No preharvest interval through 1.25 pounds per acre of dust formulations for foliar application to tomatoes to be cooked (canning) before marketing. 21 day preharvest interval through 1 pound per acre of spray formulations or 1.25 pounds per acre of dust formulations for foliar application. 28 day preharvest interval through 1 pound per acre of bait formulations for soil application (band or broadcast). Do not graze fields treated with bait formulations.
ITBCCFA	Armyworm	1-1.25 lb/A (3-8% D)	Foliar application. May be applied by aircraft.
IOAAAEA	Dipterous leafminers		
IOABADA	Serpentine leafminer complex		
ITBRAJA	Tomato hornworm		
IOAAAEA	Dipterous leafminers	1 lb/A (6 lb/gal SC/I) (50-80% SC/S)	
IOABADA	Serpentine leafminer complex		
ITBRAJA	Tomato hornworm		

DIMETHYL (2,2,2-TRICHLORO-1-HYDROXYETHYL)PHOSPHONATE

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
	Tomato (continued)		
ITBCCFA	Armyworm	1 lb/A (5% D) (3-5% G) [Bait]	Soil application (band). Apply over the row and around base of plants. Broadcast soil application. May be applied by aircraft. For fields with previous infestations or suspected infestations of cutworms, apply prior to or just after planting.
ITBCCNA	Beet armyworm		
IVAHAAA	Crickets (including mole crickets)		
ITBCABA	Cutworms (climbing and surface feeding including black cutworm, granulate cut- granulated cutworm, variegated cutworm, western bean cutworm)		
INBUAAA	Darkling beetles		
ITABACA	Saltmarsh caterpillar		
ITBCCRA	Western yellow-striped armyworm		
	Truck Crops	See Field Crops cluster.	
	Wheat	See Barley cluster.	

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations

LIVESTOCK AND POULTRY

General Warnings and Limitations: Do not treat lactating dairy cattle, animals less than 3 months old (unless otherwise specified), convalescent, or stressed livestock. Do not apply in conjunction with oral drenches, or other internal medications, or with other organic phosphates, or materials having cholinesterase inhibiting activity.

(Dairy Animals)

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
/50004IA /53001IA	Dairy Cattle (non-lactating)		0.1 ppm (meat, fat and meat byproducts of cattle) 0.01 ppm (milk) 7 day prefreshening interval through 0.5 fluid ounce of 8 percent ready-to-use formulation per 100 pound body weight for pour on application. Do not apply more than 4 fluid ounces of 8 percent ready-to-use formulation per animal. If freshening occurs within 7 days after treatment, do not use milk for human consumption for the balance of the 7 day interval. 21 day preslaughter interval through 0.5 fluid ounce of 8 percent ready-to-use formulation per 100 pound body weight for pour on application.
IOAWABA	Cattle grubs (including common cattle grub and northern cattle grub)	0.5 fl.oz 8% RTU/100 lb body wt. (8% RTU)	Animal treatment. Pour on application. Apply a single treatment along the backline. Proper timing of treatment is important. Treat cattle as soon as possible after fly activity ceases. Host parasite reactions sometimes occur when cattle are treated while the common cattle grub is in the gullet, or while the northern cattle grub is in the area of the spinal cord. Consult your veterinarian, extension livestock specialist, or extension entomologist regarding timing of treatment. If it is impossible to determine the origin of the cattle, and thus the exact stage of the grubs is unknown, feed only a maintenance ration of low energy feed during the treatment period. This lessens the likelihood of severe bloat which may occur in
IMAAADA	(Lice)		

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
	Dairy Cattle (non-lactating) (continued)		
			cattle on full feed when the common cattle grub is killed while in the gullet. Do not treat animals for 10 days before or after shipping or weaning, or after exposure to contagious or infectious diseases.
	(Livestock Intended for Slaughter)		
/53001IA	Beef Cattle		0.1 ppm (meat, fat, and meat byproducts of cattle) 0.01 ppm (milk) 14 day preslaughter interval through 8 pounds of soluble concentrate/solid formulation per 100 gallons of water for animal spray application. Do not apply more than 4 fluid ounces of 8 percent ready to use formulation per animal.
IOAWABA	Cattle grubs (including common cattle grub and northern cattle grub)	8 lb/100 gal (80% SC/S)	Animal spray treatment. Apply a single treatment with high pressure (250 to 350 pounds per square inch) to thoroughly wet the skin. Operate box-type spray chutes at maximum pressure. Do not spray in a confined, nonventilated area. Proper timing of treatment is important. Treat cattle as soon as possible after fly activity ceases. Host parasite reactions sometimes occur when cattle are treated while the common cattle grub is in the gullet, or while the northern cattle grub is in the area of the spinal cord. Consult your veterinarian, extension livestock specialist, or extension entomologist regarding timing of treatment. If it is impossible to determine the origin of the cattle, and thus the exact stage of the grubs is unknown, feed only a maintenance ration of low energy feed

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
	Beef Cattle (continued)		
			during the treatment period. This lessens the likelihood of severe bloat which may occur in cattle on full feed when the common cattle grub is killed while in the gullet. Do not treat animals for 10 days before or after shipping or weaning, or after exposure to contagious or infectious diseases.
IOAUADA IMAAADA	Horn fly Lice	8 lb/100 gal (80% SC/S)	Animal spray treatment. Apply to the point of run off. Repeat as needed.
		Refer to (Dairy Animals), Dairy Cattle (non-lactating) for additional information.	
	(Livestock Not Intended for Slaughter)		
/56005IA	**Horses**		0.1 ppm (meat, fat, and meat byproducts of horses) Do not treat horses to be slaughtered for food. Do not treat sick or debilitated horses, mares in the last month of pregnancy, or colts under 4 months of age. Do not administer in conjunction with or for 10 to 14 days (depending upon the product) before or after treatment with other organic phosphates or cholinesterase inhibitors. Symptoms of overdosage are ataxia and colic.
IOASAAA	Horse bots	9 g/5-10 fl.oz/500 lb body wt. (37.8% WP/D)	Animal treatment. Administer by stomach tube or drench. The suspension may be stored for 24 hours. Prepare doses individually. Repeat at 30 day intervals as needed. Formulated with thiabendazole.
		9 g/500 lb body wt. (37.8% WP/D) (37.8-90% P/T)	Animal treatment. Administer dry or dissolved in water. Mix with the amount of feed to be consumed at 1 feeding. Withdrawal of feed 12 to 18 hours prior to treatment will assure complete ingestion. Repeat at 90 to 120 day intervals. Do not

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
	Horses (continued)		
			repeat treatment more frequently than every 30 days. Do not administer intravenous anesthetics, especially muscle relaxant, for a period of 14 days after treatment. May be formulated with thiabendazole.

AGRICULTURAL PREMISES AND EQUIPMENT

General Warnings and Limitations: Good sanitation is a necessary part of any house fly control program. Direct application to walls, floors, or other surfaces previously treated with lime, whitewash, or other alkaline materials may be ineffective. On limed floors, where floors are lacking, or where there is not enough clean floor space available, treat and distribute bait on sacking, boards, or cardboard strips. Dry and liquid baits may be applied daily, if needed, until flies are controlled. Do not comtaminate milk or milk handling equipment. Do not contaminate feed, drinking water, litter, and feed troughs. Do not treat portions of buildings where animals can lick the treated surface.

(Dairy Barns Including Milk Rooms, Equipment and Barnyards)

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
/50000JA /60004JA /53000JA /52000JA	**Dairy Barns** **Milking Rooms**		0.1 ppm (meat, fat, and meat byproducts of cattle) 0.01 ppm (milk)
IVAAABA IOAUAFA	Cockroaches House fly	0.032-0.04 oz /1,000 sq.ft (0.4-1% G)	Premise treatment. Dry bait. Scatter directly on areas where pests breed or congregate. Scatter lightly on floors, alleyways, window sills, and other clean horizontal surfaces. For faster results, apply to a moistened surface.
		0.16 oz/gal (1% G)	Premise treatment. Liquid bait. Mix with 1 pound of sugar or 2 cups of corn syrup. Sprinkle on floors, alleyways, window sills, and other areas where pests congregate.

DIMETHYL (2,2,2-TRICHLORO-1-HYDROXYETHYL)PHOSPHONATE

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
	Dairy Barns cluster (continued)		
		Syrup bait (1% G)	Premise treatment. Apply in sufficient water to make a syrup. Brush onto vertical surfaces, ceiling cracks, and rafters where pests congregate. For flies in areas not clean enough, apply to sacks, boards, or strips of cardboard and place them inside or outside buildings where pests congregate.
/50000KA /60004KA /53000KA /52000KA	Dairy Barns (manure treatment) Milking Rooms (manure treatment)		0.1 ppm (meat, fat, and meat byproducts of cattle) 0.01 ppm (milk)
IVAAABA IOAUAFA	Cockroaches House fly	0.04 oz/ 1,000 sq.ft (1% G)	Manure treatment. Dry bait. Scatter directly onto manure where pests breed or congregate.
		0.16 oz/gal (1% G)	Manure spot treatment. Liquid bait. Mix with 1 pound of sugar or 2 cups of corn syrup. Sprinkle directly onto manure where pests breed or congregate.
/890030A	Garbage Dumps (dairy barn and milking room premises)		0.1 ppm (meat, fat, and meat byproducts of cattle) 0.01 ppm (milk)
IVAAABA IOAUAFA	Cockroaches House fly	0.04 oz/ 1,000 sq.ft (1% G)	Dry bait. Scatter directly onto garbage dumps where pests breed or congregate.
		0.16 oz/gal (1% G)	Liquid bait. Mix with 1 pound of sugar or 2 cups of corn syrup. Sprinkle directly on garbage dumps where pests breed or congregate.

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
	(Animal Buildings, Equipment and Outdoor Areas For Other Than Dairy, Poultry and Pets)		
/53000JA	Animal Buildings (including barns, shelters, and stables)		0.1 ppm (meat, fat, and meat byproducts of cattle, goats, horses, and sheep)
IOAUAFA	House fly	1% impr waxed tray (1% Impr)	Bait application. Dip tray in water before attaching tray under garbage can lids or hanging on walls outdoors where pests accumulate. Keep waxed tray moist.
		4 lb/40 gal [2 gal/1,000 sq.ft] (80% SC/S)	Premise residual spray treatment. Remove animals before spraying. Apply in and around buildings and stock pens. Apply to ceilings, floors, walls, and other areas where flies breed and congregate. Repeat as needed, but not more frequently than 4 to 14 day intervals. For longer residual activity, add 1 pound of sugar per gallon of spray.
		Refer to (Dairy Barns Including Milk Rooms, Equipment and Barnyards), Dairy Barns cluster for additional information.	
/53000KA	Animal Buildings (manure treatment)		
		Refer to (Dairy Barns Including Milk Rooms, Equipment and Barnyards), Dairy Barns (manure treatment) cluster.	
/890030A	Garbage Dumps (animal building premises)		0.1 ppm (meat, fat, and meat byproducts of cattle, goats, horses, and sheep)
IOAUAFA	House fly	1% impr waxed tray (1% Impr)	Bait application. Dip tray in water before attaching tray under garbage can lids or hanging on walls outdoors where pests accumulate. Keep waxed tray moist.

EPA Index to Pesticide Chemicals

DIMETHYL (2,2,2-TRICHLORO-1-HYDROXYETHYL)PHOSPHONATE

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
	Garbage Dumps (animal building premises) (continued)		
		4 lb/40 gal [2 gal/1,000 sq.ft] (80% SC/S)	Premise residual spray treatment. Apply to refuse, garbage dumps, and other areas where flies breed and congregate. Repeat as needed, but not more frequently than 7 to 14 day intervals. For longer residual activity, add 1 pound of sugar per gallon of spray.
			Refer to (Dairy Barns Including Milk Rooms, Equipment and Barnyards), Garbage Dumps (dairy barn and milking room premises) for additional information.
	(Feed Lots, Holding Pens and Corrals)		
/52000JA /52000JA	Feed Lots Pens		0.1 ppm (meat, fat, and meat byproducts of cattle, goats, horses, and sheep)
			Refer to (Dairy Barns Including Milk Rooms, Equipment and Barnyards), Dairy Barns cluster.
/52000KA /52000KA	Feed Lots (manure treatment) Pens (manure treatment)		0.1 ppm (meat, fat, and meat byproducts of cattle, goats, horses, and sheep)
			Refer to (Dairy Barns Including Milk Rooms, Equipment and Barnyards), Dairy Barns (manure treatment) cluster.
/890030A	Garbage Dumps (feed lots and pen premises)		0.1 ppm (meat, fat, and meat byproducts of cattle, goats, horses, and sheep)
			Refer to (Dairy Barns Including Milk Rooms, Equipment and Barnyards), Garbage Dumps (dairy barn and milking room premises) for additional information.

HUMAN, PETS AND OTHER ANIMALS

General Warnings and Limitations: Good sanitation is a necessary part of any house fly control program. Do not treat portions of buildings or areas where animals can lick the treated surface. Apply baits in areas inaccessible to children and animals. Do not contaminate feed or drinking water.

DIMETHYL (2,2,2-TRICHLORO-1-HYDROXYETHYL)PHOSPHONATE

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
/54000JA /54003JA	Animal Hospitals		
IVAAABA IOAUAFA	Cockroaches House fly	0.04 oz/ 1,000 sq.ft (1% G)	Premise treatment. Dry bait. Scatter outside runways, on window sills, on ledges, and other areas where pests congregate. For caged units, apply along edges of dropping area. For faster results, apply to a moistened surface.
		0.16 oz/gal (1% G)	Premise spot treatment. Mix with 1 pound of sugar or 2 cups of corn syrup. Apply outside runways and areas where pests congregate.
		Syrup bait (1% G)	Premise spot treatment. Apply in sufficient water to make a syrup. Brush onto vertical surfaces and areas where pests congregate.
/54029IA /65031MA	Bait Fish and Goldfish		Consult your State Fish and Game Agency before applying this product to public waters. Permits may be required before treating such waters. Apply when the water temperature at the 2 foot level is 85 F (29.4 C).
IIEAABA IIAAABA IDCAABA	Anchor worms Fishlice (argulus sp.) Gill flukes	A concentration of 25 ppm in the pond (80% SC/S)	Water treatment to control fish parasites. Mix in sufficient water to permit even distribution over the pond surface. Apply uniformly to the pond surface by sprinkler can, low pressure sprayer, or by metering into the wake of a power driven boat. Apply in a criss-cross pattern covering the entire pond surface. For anchor worm and fishlice make 4 applications at 7 day intervals. For gill flukes make 1 application.

DIMETHYL (2,2,2-TRICHLORO-1-HYDROXYETHYL)PHOSPHONATE

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
/54002JA /54003JA	Cat Quarters Dog Quarters		
IMNAAAA	Fleas	40 g/gal [1 gal/ 1,000 sq.ft] (80% SC/S)	Use limited to professional pest control operators. Premise treatment. Apply to yard area and other areas frequented by animals. Remove animals before treatment and let deposit dry before allowing animals back into treated area. Repeat as needed.
/54003IA	Dogs		This use only occurs on multiple active ingredient labeling and has not been included in this single active ingredient entry. Refer to appropriate labeling for use information and limitations.
/54003JA	Dog Kennels		
IOAUAFA	House fly	40 g/8.75 lb sugar [4 tbls/ 1,000 sq.ft] (80% SC/S)	Use limited to professional pest control operators. Premise treatment. Dry bait. Scatter on outside runways, on window sills, on ledges, and other areas where pest congregate. Repeat as needed.
		40 g/gal [5 gal/ 1,000 sq.ft] (80% SC/S)	Use limited to professional pest control operators. Premise treatment. For longer residual control, mix with 1 pound of sugar or molasses per gallon of water. Apply as a spray or brush onto areas where pest congregate.
		Refer to Animal Hospitals for additional information.	
/54002JA	Pet Kennels		
IOAUAFA	House fly	0.032 oz/ 1,000 sq.ft (0.4% G)	Premise treatment. Dry bait. Scatter on areas where pest congregates.

DIMETHYL (2,2,2-TRICHLORO-1-HYDROXYETHYL)PHOSPHONATE

ORNAMENTALS

General Warnings and Limitations: Phytotoxicity has occurred on certain varieties of carnation, hydrangeas, and zinnias. When treating large plantings of these flowers for the first time, treat a few plants and observe for 4 to 5 days before treating the entire planting. Do not handle treated plants until spray deposit has dried.

(Ornamental Plants (herbaceous, woody shrubs, trees and vines))

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
/31142AA	Narcissus		
IOBJAEA	Narcissus bulb fly	1 lb/100 gal/ 1,000 ft row (6 lb/gal SC/L) (50-80% SC/S)	Soil drench. Direct stream at base of plants at the beginning of adult activity (early May to June). Repeat annually.
/32005AA /35000AA /63003OA	Ornamental Evergreens Ornamental Shade Trees		
ITAXAIB	Gypsy moth (eggs)	2 oz 40.5% SC/L/gal (40.5% SC/L)	Bark application. Treat egg masses on tree trunks and limbs, under bark, on fences, and in wood piles and rock walls. Apply to the point of run off, usually in April or shortly before larval emergence. Egg masses usually begin hatching in mid-April, but can vary according to location. Consult your State Agricultural Extension Service for proper timing of application in your area.

DIMETHYL (2,2,2-TRICHLORO-1-HYDROXYETHYL)PHOSPHONATE

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
/31000AA	Ornamental Herbaceous Plants (including annuals)		
/35000AA	Ornamental Shade Trees		
/34000AA	Ornamental Woody Shrubs and Vines		
ITBCCFA	Armyworm	-- (5% D) or 0.167-0.25 oz**/gal or 1-1.5 lb/100 gal (4-6 lb/gal SC/L) (40.5% SC/L)*** (50-80% SC/S)	Foliar application. For dust formulation, apply to both upper and lower surfaces of leaves. For spray formulations, apply until plants are thoroughly wet. Repeat as needed.
ITBKABA	Bagworm		
ITBCCZA	Climbing cutworms		
IOAAAEA	Dipterous leafminers		
IQAMARA	Lygus bugs		
IQAQAAA	Stink bugs		
IQAMATA	Tarnished plant bug		
ITBCBNA	Tobacco budworm		
ITAAAMA	Webworms		
/31000AA /31000DA	Ornamental Herbaceous Plants (including aster, chrysanthemum, daisy, iris, and nursery stock)		
ITBCCFA	Armyworm	1-1.5 lb/A (5% G)	Foliar application.
IVAHAAA	Crickets		
ITABACA	Saltmarsh caterpillar		
/35098AA	Pine		
ITBGBLA	Nantucket pine tip moth	0.167 oz**/gal or 1 lb/100 gal (4-6 lb/gal SC/L) (40.5% SC/L)*** (50-80% SC/S)	Foliar application. Apply until plants are thoroughly wet. Repeat as needed.
ITBMBCA	Zimmerman pine moth		

DIMETHYL (2,2,2-TRICHLORO-1-HYDROXYETHYL)PHOSPHONATE

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
	(Lawns and Turf (including ground covers))		
/330100A	Lawns		
/330080A	Ornamental Turf		Do not graze or use clippings from treated areas for feed or forage. Keep children and pets off treated areas until spray has dried for spray formulations. After granular application, water the lawn using 75 to 150 gallons of water per 5,000 square feet.
ISASAAA	Ants	0.125-0.625 lb/5,000 sq.ft (5-6.2% G) or 0.625-0.9375 lb/5,000 sq.ft [up to 75-150 gal/ 5,000 sq.ft] (4-6 lb/gal SC/L) (50% SC/S) or 0.375-0.9375 lb/5,000 sq.ft [up to 75-150 gal/ 5,000 sq.ft] (80% SC/S)	Application to established lawns and turf. For sod webworms, mow lawn and rake dead grass from damaged areas. Water lawn and allow grass to dry before spraying. Do not water again for at least 3 days. Apply up to 3 applications at 21 to 28 day intervals. Up to 3 applications may be needed for maximum control. In most areas, the first application should be made in May or June. Consult your State Agricultural Extension Service for more specific information.
ITBCCFA	Armyworm		
IQALAEA	Chinch bug		
IVAHAAA	Crickets		
ITBCABA	Cutworms (including surface feeding cutworms)		
ITABACA	Saltmarsh caterpillar		
ITBMABA	Sod webworms		
ISASAVA	Texas harvester ant	0.67-1 cup 5% G/mound (5% G)	Broadcast application over mound surface. Inspect treated mound regularly and repeat applications as needed.

DIMETHYL (2,2,2-TRICHLORO-1-HYDROXYETHYL)PHOSPHONATE

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
	Lawns cluster (continued)		
INBPAAA	White grubs (including Asiatic garden beetle, European chafer, Japanese beetle, May beetle, Northern masked chafer, and Oriental beetle)	0.9375 lb/ 5,000 sq.ft (5-6.2% G) or 0.9375 lb/ 5,000 sq.ft [up to 75-150 gal/ 5,000 sq.ft] (4 lb/gal SC/L) (50-80% SC/S)	Application to established lawns and turf. Apply when grubs are young and actively feeding near the soil surface usually during July and August. Do not attempt to control grubs in turf areas that have over 0.5 to 0.75 inch thatch build up since heavy thatch (0.75 to 2 inches) will prevent the insecticide from penetrating down to the area where pests are feeding. Remove thatch before treating. A second application may be needed for large sized larvae. Thoroughly irrigate turf immediately after application. Irrigation may be postponed, based on actual count and species of grub present. Refer to 80 percent soluble concentrate/solid formulation labels for specific watering schedule.
	(Ornamental and Forest Greenhouse Plants)		
/32008CA	Weed Hosts of Plant Pathogens (greenhouse research crops)		This use only occurs on Special Local Need (24(C)) labeling and has not been included in this entry. Refer to appropriate labeling for use information and limitations.

EPA Index to Pesticide Chemicals

DIMETHYL (2,2,2-TRICHLORO-1-HYDROXYETHYL)PHOSPHONATE

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
	FOREST, CHAPARRAL, NONAGRICULTURAL AND WASTELANDS		
/30000AA	Forest Trees		Do not apply directly to water or wetlands except under the forest canopy. Consult State Agricultural Extension Service for proper timing of application in the area infested. Application of undiluted trichorphon can cause spotting of automobile paint surfaces if exposure is permitted. If accidental exposure does occur, the car should be washed immediately.
ITAUAGA	Forest tent caterpillars	0.75 lb/A (4 lb/gal SC/L)	Use limited to AL and LA. Ultra low volume foliar application. Apply undiluted by aircraft. Repeat as needed.
ITAXAIC	Gypsy moth (larvae)	1 lb/A (4 lb/gal SC/L)	Ultra low volume foliar application. Apply undiluted by aircraft. Repeat as needed.
		1 lb/A (1.5 lb/gal RTU)	Ultra low volume foliar application. Apply by aircraft. Schedule applications in accordance with the recommendation of local gypsy moth control authorities. Repeat as needed.
ITBUASA	Spruce budworm	0.5-1 lb/A (4 lb/gal SC/L)	Use limited to ME and NH. Ultra low volume foliar application. Apply undiluted by aircraft when approximately 50 percent of the larvae are in the fourth instar. Repeat as needed.
	NONCROP AQUATIC AREAS		
/65031MA	Ponds		Consult your State Fish and Game Agency before applying this product to public waters. Permits may be required before treating such waters.

Refer to HUMAN, PETS AND OTHER ANIMALS, Bait Fish and Goldfish, for additional information.

DIMETHYL (2,2,2-TRICHLORO-1-HYDROXYETHYL)PHOSPHONATE

DOMESTIC DWELLINGS, MEDICAL FACILITIES AND SCHOOLS

General Warnings and Limitations: Good sanitation is a necessary part of any house fly control program. Do not contaminate food, drinking water, or utensils. Do not allow children or pets in treated areas until sprayed surfaces are dry. Apply baits in areas inaccessible to children and pets. Dry and liquid baits may be applied daily, if needed, until flies are controlled.

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
/630010A	Domestic Dwellings (Indoor)		The 80 percent soluble concentrate/solid formulation is limited to professional pest control operators.
IQAFACA	Bed bug	40 g/gal (80% SC/S)	Indoor treatment. Apply as a coarse spray or brush onto baseboards, cracks, and crevices. Treat beds including a light application to tufts and seams of mattresses. Do not soak mattresses. Treated mattresses should be aired for at least 8 hours or until dry. Do not treat infant bedding or cribs.
IVAAABA IVAHAAA IMPBACA	Cockroaches Crickets Silverfish	Bait (0.92-1% G)	Indoor treatment. Dry bait. Place a small quantity on pieces of paper, cardboard, or in shallow jar lids. Place in protected areas such as in closets, under sinks or refrigerators, and where dying insects cannot fall into food, utensils, or drinking water. Any bait visible after application should be carefully brushed into cracks and crevices or removed. Wet the bait slightly for increased killing efficiency.
		40 g/19 lb sugar or 0.46% dry bait (80% SC/S)	Indoor treatment. Dry bait. Apply to areas where pests congregate.
		40 g/gal/ 750 sq.ft (80% SC/S)	Indoor spot treatment. For residual control, apply as a coarse spray or brush onto baseboards, cracks, crevices, and other areas where pests hide or congregate. Repeat as needed.

DIMETHYL (2,2,2-TRICHLORO-1-HYDROXYETHYL)PHOSPHONATE

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
	Domestic Dwellings (Indoor) (continued)		
IMNAAAA ILAAACA	Fleas Ticks	40 g/gal/ 750 sq.ft (80% SC/S)	Indoor treatment. Apply to infested areas including rugs, draperies, furniture, baseboards, cracks, crevices, and all places where pests are found. Before spraying fabric, test spray on small hidden area to insure that the spray will not stain. In animal sleeping and holding areas, remove old bedding and spray floor thoroughly. Replace with fresh bedding after spray dries. Do not spray pets directly. Allow sprayed areas to thoroughly dry before contact. Repeat as needed.
/630030A	Domestic Dwellings (Outdoor)		The 80 percent soluble concentrate/solid formulation is limited to professional pest control operators.
ISASAAA IVAHAAA	Ants Crickets	0.4-0.8 oz/ 1,000 sq.ft (5% G)	Outdoor treatment. Dry bait. Apply around perimeter of building.
IMDAAAA	Earwigs	0.32 oz/ 1,000 sq.ft (1% G)	Outdoor treatment. Dry bait. Apply lightly on ground, grass, near foundation of house, along sidewalk and driveway, around porches, doors and other entrances to the house. Apply in late afternoon and repeat at 14 day intervals as needed.
IOAUAFA	House fly	40 g/8.75 lb sugar [4 tbls/ 1,000 sq.ft] (80% SC/S)	Outdoor treatment. Dry bait. Apply to areas where pests congregate. Repeat as needed.
		40 g/gal [2.5-5 gal/ 1,000 sq.ft] (80% SC/S)	Outdoor treatment. Apply as a coarse spray or brush onto selected surfaces where pest congregates. Mix spray with 1 pound of sugar per gallon for longer residual control. On manure piles, apply the high rate. Repeat at 7 to 14 day intervals as needed.

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
	Domestic Dwellings (Outdoor) (continued)		
ISASAVA	Texas harvester ant	0.67-1 cup 5% G/mound (5% G)	Broadcast application over mound surface. Inspect treated mound regularly and repeat applicaions as needed.
		Refer to ORNAMENTALS, (Ornamental Plants (herbaceous, woody shrubs, trees and vines)), Ornamental Evergreen cluster for additional information.	
		Refer to URBAN AND RURAL INDOOR/OUTDOOR AREAS (PUBLIC HEALTH), Recreational Areas (including Picnic Areas) for additional information.	
/890030A	Garbage Dumps		
IVAAABA IOAUAFA	Cockroaches House fly	0.04 oz/ 1,000 sq.ft (1% G)	Dry bait. Scatter directly on garbage dumps where pests breed or congregate.
		0.16 oz/gal (1% G)	Liquid bait. Mix with 1 pound of sugar or 2 cups of corn syrup. Sprinkle directly on garbage dumps where pests breed or congregate.
IOAUAFA	House fly	1% impr waxed tray (1% Impr)	Bait application. Dip tray in water before attaching tray under garbage can lids or hanging on walls outdoors where pests accumulate. Keep waxed tray moist.
		40 g/gal [5 gal/ 1,000 sq.ft] (80% SC/S)	Use limited to professional pest control operators. Apply as a coarse spray. Mix spray with 1 pound of sugar per gallon for longer residual control. Repeat at 7 to 14 day intervals as needed.
/880030A	Latrines (Outdoor)		
IVAAABA IOAUAFA	Cockroaches House fly	0.04 oz/ 1,000 sq.ft (1% G)	Dry bait. Scatter lightly where pests breed or congregate. For faster results, apply to a moistened surface.
		0.16 oz/gal (1% G)	Liquid bait. Spot treatment. Mix with 1 pound of sugar or 2 cups of corn syrup. Sprinkle where pests congregate.

DIMETHYL (2,2,2-TRICHLORO-1-HYDROXYETHYL)PHOSPHONATE

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
	URBAN AND RURAL INDOOR/OUTDOOR AREAS (PUBLIC HEALTH)		
/670020A /630030A	Recreational Areas (including Picnic Areas)		
IVAAABA IOAUAFA	Cockroaches House fly	0.04 oz/ 1,000 sq.ft (1% G)	Dry bait. Scatter lightly where pests breed or congregate. For faster results, apply to a moistened surface.
		0.16 oz/gal (1% G)	Liquid bait. Mix with 1 pound of sugar or 2 cups of corn syrup. Sprinkle where pests congregate.
		Syrup bait (1% G)	Syrup bait. Spot treatment. Mix in enough water to make a syrup. Brush on vertical surfaces and other areas where pests congregate.
IOAUAFA	House fly	1% impr waxed tray (1% Impr)	Bait application. Dip tray in water before attaching tray under garbage can lids or hanging on walls outdoors where pests accumulate. Keep waxed tray moist. Apply to areas inaccessible to children and pets.
/890030A	Garbage Dumps (Recreational Area Premises)		
IVAAABA IOAUAFA	Cockroaches House fly	0.04 oz/ 1,000 sq.ft (1% G)	Dry bait. Scatter directly on garbage dumps where pests breed or congregate.
		0.16 oz/gal (1% G)	Liquid bait. Mix with 1 pound of sugar or 2 cups of corn syrup. Sprinkle directly on garbage dumps where pests breed or congregate.
IOAUAFA	House fly	1% impr waxed tray (1% Impr)	Bait application. Dip tray in water before attaching tray under garbage can lids or hanging on walls outdoors where pests accumulate. Keep waxed tray moist. Apply to areas inaccessible to children and pets.

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations

COMMERCIAL ESTABLISHMENTS

General Warnings and Limitations: Good sanitation is a necessary part of any house fly control program. Baits may be used in edible product areas. Do not use other formulations in edible product areas of food processing plants, restaurants, or other areas where food is commercially prepared or processed. Do not use in serving areas while food is exposed. Apply baits in areas inaccessible to children and animals.

(Commercial Establishments (edible product areas))

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
/71009JB	Poultry Packing Plants		
/71008JB	Red Meat Packing Plants		Use limited to federally inspected plants. Use only when the facility is not in operation and food is not exposed. Use only in bait boxes where bait in each box can be accounted for. Remove and account for all bait boxes prior to resuming food processing.
IVAAABA	Cockroaches	0.04 oz/ 1,000 sq.ft (1% G)	Indoor treatment. Dry bait.
IOAUAFA	House fly		
		0.16 oz/gal (1% G)	Indoor treatment. Liquid bait. Mix with 1 pound of sugar or 2 cups of corn syrup.
		Syrup bait (1% G)	Indoor treatment. Syrup bait. Mix in enough water to make a syrup.

(Commercial Establishments (areas other than edible product))

General Warnings and Limitations: Do not treat cannery waste which may be fed to livestock. Do not contaminate feed, food, water, or food processing equipment.

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
/77000JC	Commercial, Institutional and Industrial Areas (Inedible Areas)		The 80 percent soluble concentrate/ solid formulation is limited to professional pest control operators.
/72000JC	Eating Establishments (Inedible Areas)		
/71000JC	Food Processing, Handling and Storage Plants/Areas (Inedible Areas)		
ISASAAA	Ants	0.4-0.8 oz/ 1,000 sq.ft (5% G)	Outdoor treatment. Dry bait. Apply around perimeter of building.
IVAHAAA	Crickets		

DIMETHYL (2,2,2-TRICHLORO-1-HYDROXYETHYL)PHOSPHONATE

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
	Commercial, Institutional and Industrial Areas (Inedible Areas) (continued)		
IVAAABA	Cockroaches	Bait (1% G)	Indoor treatment. Dry bait. Place a small quantity on pieces of paper, cardboard, or in shallow jar lids in locations inaccessible to children and animals. Place where dying insects cannot fall into food, utensils, or drinking water. Wet the bait slightly for increased killing efficiency.
IOAUAFA	House fly	40 g/gal [1.33 gal/ 1,000 sq.ft] (80% SC/S)	Indoor or outdoor treatment. Apply as a coarse spray or brush onto selected interior and exterior surfaces of buildings where pest congregates. Apply only when animals and humans are absent. Do not allow reentry until treated surfaces are dry. Mix spray with 1 pound of sugar per gallon for longer residual control. Repeat at 7 to 14 day intervals as needed.
		40 g/8.75 lb sugar [4 tbls/ 1,000 sq.ft] (80% SC/S)	Indoor or outdoor treatment. Apply where pest congregates. Repeat as needed.
		0.04 oz/ 1,000 sq.ft (1% G)	Outdoor treatment. Dry bait. Scatter on ground where pest congregates.
ISASAVA	Texas harvester ant	0.67-1 cup 5% G/mound (5% G)	Broadcast application over mound surface. Inspect treated mound regularly and repeat applicaions as needed.
/890030A	Garbage Dumps		
IVAAABA IOAUAFA	Cockroaches House fly	0.04 oz/ 1,000 sq.ft (1% G)	Dry bait. Scatter directly on garbage dumps where pests breed or congregate.

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
	Garbage Dumps (continued)		
		40 g/gal [5 gal/ 1,000 sq.ft] (80% SC/S)	Outdoor treatment. Apply to garbage piles. Mix with 1 pound of sugar per gallon for longer residual control. Repeat at 7 to 14 day intervals as needed.
	AERIAL, MOTHPROOFING AND TANK MIX APPLICATIONS		
9001500 AAAAAAA	**Aerial Application**		
	—	Refer to AGRICULTURAL CROPS	
			All sites except Field Crops, Truck Crops, Tobacco (to be transplanted)
		FOREST, CHAPARRAL, NONAGRICULTURAL AND WASTELANDS	
			Forest Trees

DIMETHYL (2,2,2-TRICHLORO-1-HYDROXYETHYL)PHOSPHONATE

Listing of Registered Pesticide Products by Formulation

90% technical chemical

dimethyl (2,2,2-trichloro-1-hydroxyethyl) phosphonate (057901)
011556-00006

97% technical chemical

dimethyl (2,2,2-trichloro-1-hydroxyethyl) phosphonate (057901)
011678-00003 013801-00015 040831-00108

98% technical chemical

dimethyl (2,2,2-trichloro-1-hydroxyethyl) phosphonate (057901)
002749-00181 003125-00009 011556-00030

80% formulation intermediate

dimethyl (2,2,2-trichloro-1-hydroxyethyl) phosphonate (057901)
002749-00103 003125-00066 003125-00129 007173-00104
011678-00010 040831-00107

82% formulation intermediate

dimethyl (2,2,2-trichloro-1-hydroxyethyl) phosphonate (057901)
011556-00055

3% dust

dimethyl (2,2,2-trichloro-1-hydroxyethyl) phosphonate (057901)
001202-00269

5% dust

dimethyl (2,2,2-trichloro-1-hydroxyethyl) phosphonate (057901)
000635-00395 000769-00396 001202-00268 002342-00913
002749-00331 003125-00064 010226-00036 040831-00102
044317-00026

8% dust

dimethyl (2,2,2-trichloro-1-hydroxyethyl) phosphonate (057901)
040831-00104

0.4% granular

dimethyl (2,2,2-trichloro-1-hydroxyethyl) phosphonate (057901)
002724-00225

0.92% granular

dimethyl (2,2,2-trichloro-1-hydroxyethyl) phosphonate (057901)
009172-00001

1% granular

dimethyl (2,2,2-trichloro-1-hydroxyethyl) phosphonate (057901)
000239-00778 000270-00057 000327-00095 000869-00146
001386-00281 001990-00491 002217-00557 003125-00007
003125-00151 006762-00052 008590-00170 042057-00077

DIMETHYL (2,2,2-TRICHLORO-1-HYDROXYETHYL)PHOSPHONATE

Listing of Registered Pesticide Products by Formulation (continued)

3% granular
dimethyl (2,2,2-trichloro-1-hydroxyethyl) phosphonate (057901)
010226-00029

3.5% granular
dimethyl (2,2,2-trichloro-1-hydroxyethyl) phosphonate (057901)
037686-00059

4% granular
dimethyl (2,2,2-trichloro-1-hydroxyethyl) phosphonate (057901)
002393-00437 009779-00187 037686-00058

5% granular
dimethyl (2,2,2-trichloro-1-hydroxyethyl) phosphonate (057901)
000829-00203 002269-00154 002935-00401 003125-00076
003125-00217 005905-00229 006735-00193 007001-00113
008612-00081 037686-00049

6.2% granular
dimethyl (2,2,2-trichloro-1-hydroxyethyl) phosphonate (057901)
002169-00211

5% pelleted/tableted
dimethyl (2,2,2-trichloro-1-hydroxyethyl) phosphonate (057901)
006973-00006

37.8% pelleted/tableted
dimethyl (2,2,2-trichloro-1-hydroxyethyl) phosphonate (057901)
000618-00085

90% pelleted/tableted
dimethyl (2,2,2-trichloro-1-hydroxyethyl) phosphonate (057901)
000270-00060 000602-00214

37.8% wettable powder/dust
dimethyl (2,2,2-trichloro-1-hydroxyethyl) phosphonate (057901) plus thiabendazole (060101)
000618-00086

1% impregnated materials
dimethyl (2,2,2-trichloro-1-hydroxyethyl) phosphonate (057901)
001663-00014

4 lb/gal soluble concentrate/liquid
dimethyl (2,2,2-trichloro-1-hydroxyethyl) phosphonate (057901)
003125-00143 003125-00210 006735-00206 006735-00208
040831-00111 042057-00097

6 lb/gal soluble concentrate/liquid
dimethyl (2,2,2-trichloro-1-hydroxyethyl) phosphonate (057901)
040831-00106

DIMETHYL (2,2,2-TRICHLORO-1-HYDROXYETHYL)PHOSPHONATE

Listing of Registered Pesticide Products by Formulation (continued)

40.5% soluble concentrate/liquid

dimethyl (2,2,2-trichloro-1-hydroxyethyl) phosphonate (057901)
002749-00138 008730-00030 045128-00002

50% soluble concentrate/solid

dimethyl (2,2,2-trichloro-1-hydroxyethyl) phosphonate (057901)
003125-00049 003125-00089

80% soluble concentrate/solid

dimethyl (2,2,2-trichloro-1-hydroxyethyl) phosphonate (057901)
000769-00506 001021-00336 001023-00051 002749-00107
002749-00116 003125-00118 003125-00184 003125-00227
003770-00287 011556-00031 011556-00039 011678-00011
040831-00103

1.5 lb/gal liquid ready-to-use

dimethyl (2,2,2-trichloro-1-hydroxyethyl) phosphonate (057901) plus petroleum distillate (063503)
003125-00278

8% liquid ready-to-use

dimethyl (2,2,2-trichloro-1-hydroxyethyl) phosphonate (057901)
002393-00389 002724-00218 002749-00147 003770-00288
011556-00032

9999999 State Label Registrations

AZ Reg. No.
010163-06400 037832-08360

CA Reg. No.
001202-05069 003125-07849 003125-07850 005967-05190
006023-03051 006973-03552 006973-03553 006973-03554
007001-07754 008434-04719 008434-04721 009319-04535
009319-04536 009319-04550 011093-07253

FL Reg. No.
002342-06966 002342-06968 003125-07838 009859-03942
009859-04432 014775-08743 035222-07160

GA Reg. No.
001812-03875

NY Reg. No.
003125-07832 038655-10422

PA Reg. No.
003125-07831

TX Reg. No.
003125-07830

II. REQUIREMENT FOR SUBMISSION OF GENERIC DATA

A. This portion of the guidance document is a Notice issued under the authority of FIFRA Section 3(c)(2)(B) and describes, in table format, the data required for maintaining the registrability of each product. Additionally, a bibliography (Appendix II-1) is included that identifies that data considered as part of the data base supporting this standard. EPA has determined that additional generic data described in this Notice must be submitted to EPA for evaluation in order to maintain in effect the registration(s) of your product(s) identified as an attachment to the cover letter accompanying this guidance document. As required by FIFRA Section 3(c)(2)(B), you are required to take appropriate steps to comply with this Notice.

EPA may suspend the registration of each of those products unless, within the specified time, you have informed EPA how you will satisfy the requirements of this Notice. Any such suspension will remain in effect until you have complied with the terms of this Notice.

B. What Generic Data [1] Must Be Submitted. You may ascertain which generic data you must submit by consulting Table A at the end of this chapter. That table shows all the generic data needed to evaluate the continued registrability of all products, and the dates by which the data must be submitted. The required data must be submitted and any necessary studies must be conducted in accordance with EPA-approved protocols, the Pesticide Registration Guidelines [2], or data collected under the approved protocols of the Organization for Economic Cooperation and Development (OECD). If you wish not to develop data which are necessary to support the registration or reregistration of certain uses appearing in your labeling, you may delete those uses at the time you submit your revised labeling.

Also for certain kinds of testing (generally ecological effects), EPA requires the test substance to be a "typical formulation," and in those cases EPA needs data of that type for each major formulation category (e.g., emulsifiable concentrates, wettable powders, granulars, etc.) These are classified as generic data and when needed are specified in Table A. EPA may possess data on certain "typical formulations" but not others. Note: The "typical formulation" data should not be confused with product-specific data (Table B) which are required on each formulation. Product-specific data are further explained in Chapter IV of this document.

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[1] Generic data pertain to the properties or effects of a particular ingredient, and thus are relevant to an evaluation of the risks of all products containing that ingredient (or all such products having a certain use pattern), regardless of any such product's unique composition or use. Product-specific data relate only to the properties or effects of a product with a particular composition (or a group of products with closely similar composition).

[2] The Pesticide Registration Guidelines were reproposed on November 24, 1982 in 47 Federal Register 53192.

C. Options Available for Complying With Requirements to Submit Data

Within 90 days of your receipt of this Notice you must submit to EPA a completed copy of the form entitled "FIFRA Section 3(c)(2)(B) Summary Sheet" [EPA Form 8580-1, Appendix II-2] for each of your products. On that form you must state which of the following methods you will use to comply with the requirements of this Notice:

1. (a) Notify EPA that you will submit the data, and

   (b) either submit the existing data you believe will satisfy the requirement, or state that you will generate the data by conducting testing. If the test procedures you will use deviate from (or are not specified in) the Registration Guidelines or protocols contained in the Reports of Expert Groups to the Chemicals Group, Organization for Economic Cooperation and Development (OECD) Chemicals Testing Programme, you must enclose the protocols you will use.

2. Notify EPA that you have entered into an agreement with one or more other registrants to jointly develop (or share in the cost of developing) the data. If you elect this option, you must notify EPA which registrant(s) are parties to the agreement.

3. File with EPA a completed "Certification of Attempt to Enter Into an Agreement With Other Registrants for Development of Data" (EPA Form 8580-6, Appendix II-3)*/

4. Request that EPA amend your registration by deleting the uses for which the data are needed. (This option is not available to applicants for new products.)

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*/ FIFRA Section 3(c)(2)(B) authorizes joint development of data by two or more registrants, and provides a mechanism by which parties can obtain an arbitrator's decision if they agree to jointly develop data but fail to agree on all the terms of the agreement. The statute does not compel any registrant to agree to develop data jointly.
(Footnote continued at bottom of next page)

5. Request voluntary cancellation of the registration(s) of your products for which the data are needed. (This option is not available to applicants for new products.)

D. Procedures for Requesting Changes in Testing Methodology and Extensions of Time

EPA recognizes that you may disagree with our conclusions regarding the appropriate ways to develop the required data or how quickly the data must be submitted. If the test procedures you plan to use deviate from (or are not specified in) the registration guidelines or protocols contained in the reports of the Expert Groups to the Chemical Groups, Organization for Economic Cooperation and Development (OECD) Chemicals Testing Programme, you must submit the protocol for Agency review prior to the initiation of the test.

If you think that you will need more time to generate the required data than is allowed by EPA's schedule, you may submit a request for an extension of time. The extension request must be submitted in writing to the Product Manager. The extension request should state the reasons why you conclude that an extension is appropriate. While EPA considers your request, you must strive to meet the deadline for submitting the required data.

(Footnote continued from previous page)

In EPA's opinion, joint data development by all registrants who are subject to the requirements to submit a pertinent item of data or a cost-sharing agreement among all such registrants is clearly in the public interest. Duplication of testing could increase costs, tie up testing facilities, and subject an unnecessarily large number of animals to testing.

As noted earlier, EPA has discretion not to suspend the registration of a product when a registrant fails to submit data required under FIFRA Section 3(c)(2)(B). EPA has concluded that it is appropriate to exercise its discretion not to suspend in ways which will discourage duplicative testing. Accordingly, if (1) a registrant has informed us of his intent to develop and submit data required by this Notice; and (2) a second registrant informs EPA that it has made a bona fide offer to the first registrant to share in the expenses of the testing [on terms to be agreed upon or determined by arbitration under FIFRA Section 3(c)(2)(B)(iii)]; and (3) the first registrant has declined to agree to enter into a cost-sharing agreement, EPA will not suspend the second firm's registration. While the first firm is not required to agree to jointly develop data, EPA is not required to force the second firm to engage in economically inefficient duplicative testing in order to maintain its registration.

TABLE A
GENERIC DATA REQUIREMENTS FOR TRICHLORFON

§158.120 - PRODUCT CHEMISTRY

Guideline Citation and Name of Test	Test Substance 1/	Guidelines Status	Are Data Required 2/ Yes	No	Footnote Number
PRODUCT IDENTITY:					
61-1 - Identity of Ingredients	TGAI	R	☒	☐	
61-2 - Statement of Composition	TGAI	R	☒	☐	
61-3 - Discussion of Formation of Ingredients	TGAI	R	☒	☐	
Analysis and Certification of Product Ingredients					
62-1 - Preliminary Analysis	TGAI	CR	☒	☐	
62-2 - Certification of Limits	TGAI	R	☒	☐	
62-3 - Analytical Methods for Enforcement of Limits	TGAI	R	☒	☐	
Physical and Chemical Characteristics					
63-2 - Color	TGAI	R	☒	☐	
63-3 - Physical State	TGAI	R	☒	☐	
63-4 - Odor	TGAI	R	☒	☐	

TABLE A
GENERIC DATA REQUIREMENTS FOR TRICHLORFON

§158.120 - PRODUCT CHEMISTRY (Con't)

Guideline Citation and Name of Test	Test Substance 1/	Guidelines Status	Are Data Required 2/		Footnote Number
			Yes	No	
Physical and Chemical Characteristics (Continued)					
63-5 - Melting Point	TGAI	R	☒	☐	
63-6 - Boiling Point	TGAI	R	☐	☒	3/
63-7 - Density, Bulk Density, or Specific Gravity	TGAI	R	☒	☐	
63-8 - Solubility	TGAI or PAI	R	☒	☐	
63-9 - Vapor Pressure	PAI	R	☒	☐	
63-10 - Dissociation constant	PAI	R	☒	☐	
63-11 - Octanol/water partition coefficient	PAI	R	☒	☐	
63-12 - pH	TGAI	R	☒	☐	
63-13 - Stability	TGAI	R	☒	☐	
63-20 - Corrosion Characteristics	TGAI	R	☒	☐	
Other Requirements:					
64-1 - Submittal of samples	Choice	CR	☐	☒	

DATA REQUIREMENT FOOTNOTES:

1/ Composition: TGAI=Technical Grade of the Active Ingredient; PAI=Pure Active Ingredient
2/ Data must be submitted no later than December, 1984.

3/ Not required because the technical material is a solid at room temperature.

TABLE A

GENERIC DATA REQUIREMENTS FOR TRICHLORFON

Lata Requirements	Composition 1/	Does EPA Have Data To Satisfy This Requirement? (Yes, No or Partially)	Bibliographic Citation	Must Additional Data Be Submitted Under FIFRA Section 3(c)(2)(B)? 2/
158.125 Residue Chemistry				
171-4 - Nature of Residue (Metabolism)				
- Plants	PAIRA	Partial	00005296 00005300 00091787	Yes 3/
- Livestock	PAIRA and plant metabolites	Partial	00005297	Yes 4/
171-4 - Residues Analytical Method				
- Plant residues	TGAI and metabolites	Yes	GS0104038 GS0104005 GS0104007 GS0104041 GS0104060 GS0104001 GS0104002	No
- Animal residues	TGAI and metabolites	Yes	GS0104006 GS0104056 GS0104057	No
171-4 - Storage Stability Data	PAI	Yes	GS0104008 GS0104061	No

TABLE A
GENERIC DATA REQUIREMENTS FOR TRICHLORFON

Data Requirements	Composition[1]	Does EPA Have Data To Satisfy This Requirement? (Yes, No or Partially)	Bibliographic Citation	Must Additional Data Be Submitted Under FIFRA Section 3(c)(2)(B)?[2]
158.125 Residue Chemistry (continued)				
171-4 - Magnitude of the Residue-Residue Studies for Each Food Use[5]				
- Root and Tuber Vegetables Group				
° Rutabagas	TEP	No	-	Yes[6]
° Beets	TEP	Yes	GS0104009	No
° Radishes	TEP	No	-	Yes[6]
° Carrots	TEP	Partial	GS0104010	Yes[7]
° Sugar Beets	TEP	No	-	Yes[8]
° Turnips	TEP	No	-	Yes[6]
- Leaves of Root and Tuber Vegetables Group				
° Beet Tops	TEP	Yes	GS0104009	No[9]
° Sugar Beet Tops	TEP	No	-	Yes[45]
- Bulb Vegetables Group				
° Garlic	TEP	No	-	Yes[6]
° Onions	TEP	No	-	Yes[6]
- Leafy Vegetables (Except Brassica Vegetables) Group				
° Spinach	TEP	No	-	Yes[6]
° Lettuce	TEP	Partial	GS0104011	Yes[10]
° Celery	TEP	No	-	Yes[6]

TABLE A
GENERIC DATA REQUIREMENTS FOR TRICHLORFON

Data Requirements	Composition[1]	Does EPA Have Data To Satisfy This Requirement? (Yes, No or Partially)	Bibliographic Citation	Must Additional Data Be Submitted Under FIFRA Section 3(c)(2)(B)?[2]
158.125 Residue Chemistry (continued)				
171-4 - Magnitude of the Residue-Residue Studies (continued)				
- Brassica Leafy Vegetables Group				
° Brussels Sprouts	TEP	No	-	Yes[11]
° Broccoli	TEP	No	-	Yes[6]
° Cabbage	TEP	No	-	Yes[12]
° Kale	TEP	No	-	Yes[6]
° Cauliflower	TEP	Partial	GS0104012	Yes[13]
° Collards	TEP	No	-	Yes[14]
- Legume Vegetables (Succulent or Dried) Group				
° Cowpeas (succulent and dried)	TEP	Partial	GS0104013	Yes[15]
° Dried Beans	TEP	Partial	GS0104003	Yes[16]
° Lima Beans	TEP	Partial	GS0104014 GS0104062	Yes[17]
° Snap Beans	TEP	Partial	GS0104015	Yes[18]
- Foliage of Legume Vegetables Group				
° Bean Vines	TEP	No	-	Yes[19]
° Cowpea Vines	TEP	Partial	GS0104013	Yes[20]
° Lima Bean Vines and Hay	TEP	Partial	GS0104014 GS0104063	Yes[21]

TABLE A
GENERIC DATA REQUIREMENTS FOR TRICHLORFON

Data Requirements	Composition[1]	Does EPA Have Data To Satisfy This Requirement? (Yes, No or Partially)	Bibliographic Citation	Must Additional Data Be Submitted Under FIFRA Section 3(c)(2)(B)?[2]
158.125 Residue Chemistry (continued)				
171-4 - Magnitude of the Residue-Residue Studies (continued)				
- Fruiting Vegetables (Except Cucurbits) Groups				
° Peppers	TEP	Partial	GS0104016	Yes[22]
° Tomatoes	TEP	Partial	GS0104017	Yes[23]
- Fruiting Vegetables Curcubits Group				
° Pumpkins	TEP	Partial	GS0104018	Yes[24]
° Watermelon	TEP	No	-	Yes[6]
- Citrus Fruits Groups				
° Citrus Fruits	TEP	Partial	GS0104064	Yes[25]
- Small Fruits and Berries Group				
° Blueberries	TEP	Yes	GS0104067	No
° Strawberries	TEP	No	-	Yes[6]
- Cereal Grains Group				
° Barley	TEP	Partial	GS0104019	Yes[26]
° Corn	TEP	Yes	GS0104043 GS0104020	No
° Oats	TEP	Partial	GS0104021	Yes[27]
° Wheat	TEP	Partial	GS0104022	Yes[28]

TABLE A

GENERIC DATA REQUIREMENTS FOR TRICHLORFON

Data Requirements	Composition[1]	Does EPA Have Data To Satisfy This Requirement? (Yes, No or Partially)	Bibliographic Citation	Must Additional Data Be Submitted Under FIFRA Section 3(c)(2)(B)?[2]
158.125 Residue Chemistry (continued)				
171-4 - Magnitude of the Residue-Residue Studies (continued)				
- Forage, Fodder, and Straw of Cereal Grains Group				
° Barley Forage and Straw	TEP	Partial	GS0104044 GS0104023	Yes[29]
° Corn Forage and Fodder	TEP	Yes	GS0104045 GS0104024	No
° Oat Forage and Straw	TEP	Partial	GS0104046 GS0104025	Yes[30]
° Wheat Forage and Straw	TEP	Partial	GS0104047 GS0104026	Yes[31]
- Grass Forage, Fodder, and Hay Group				
° Pasture Grasses (forage and hay)	TEP	Partial	GS0104048	Yes[32]
° Rangeland Grasses (Forage and Hay)	TEP	Partial	GS0104049	Yes[33]
- Non-Grass Animal Feeds (Forage, Fodder, Straw, and Hay) Group				
° Alfalfa Forage and Hay	TEP	Partial	GS0104050 GS0104027	Yes[34]
° Birdsfoot Trefoil Hay	TEP	Partial	GS0104068 GS0104051	Yes[35]
° Clover Forage and Hay	TEP	Partial	GS0104052 GS0104028 GS0104053 GS0104054	Yes[36]

TABLE A
GENERIC DATA REQUIREMENTS FOR TRICHLORFON

Data Requirements	Composition[1]	Does EPA Have Data To Satisfy This Requirement? (Yes, No or Partially)	Bibliographic Citation	Must Additional Data Be Submitted Under FIFRA Section 3(c)(2)(B)?[2]
158.125 Residue Chemistry (continued)				
171-4 - Magnitude of the Residue-Residue Studies (continued)				
- Miscellaneous Crops				
° Artichokes	TEP	No	-	Yes[37]
° Bananas	TEP	Yes	GS0104040	No
° Cottonseed	TEP	No	-	Yes[38]
° Flax	TEP	Partial	GS0104030	Yes[39]
° Peanuts	TEP	Yes	GS0104058	No
° Safflower Seed	TEP	Partial	GS0104031	Yes[40]
° Tobacco	TEP	No	-	Yes[41]
- Food Producing Animals				
° Cattle (Fat, meat and meat byproducts)	EP, TGAI or Plant Metabolites	Partial	GS0104032 GS0104033 GS0104034 GS0104035 GS0104036 GS0104065	Yes[42]
° Goats, Horses, and Sheep	EP, TGAI or Plant Metabolites	Yes	GS0104066	No
° Milk	EP, TGAI or Plant Metabolites	Partial	GS0104037 GS0104038 GS0104055	Yes[43]
° Poultry and Eggs	EP, TGAI or Plant Metabolites	Partial	GS0104004	Yes[44]

TABLE A
Generic Data Requirements for Trichlorfon

§158.125 Residue Chemistry

1/ Composition: TGAI = Technical grade of the active ingredient; PAIRA = Pure active ingredient, radiolabelled; TEP = Typical end-use product; EP = End-use product.

2/ Data must be submitted no later than June, 1987.

3/ The following additional data are required:

- o Studies demonstrating the degree of absorption of trichlorfon by both leaves and roots of representative crops as well as the subsequent translocation and metabolism of trichlorfon and/or its metabolites. [^{14}C]Trichlorfon must be used for these studies. An attempt must be made to identify all metabolites including volatile, toxic compounds (which may include DDVP). If additional metabolites of concern are indicated, additional methodology and residues studies for the r.a.c.s may be required.

4/ The following studies are required to adequately define the animal metabolism of trichlorfon:

- o Metabolism studies utilizing both poultry and ruminants. Animals must be orally dosed with [^{14}C]trichlorfon and the identity and distribution of residues in tissues, milk, and eggs, where appropriate, must be detemined. If, however, the ruminant study indicates that no additional metabolites of concern exist then the poultry study may be waived.

- o In addition, a metabolism study with [^{14}C]trichlorfon should be performed reflecting the use of the high-pressure dermal spray application of the 80% SC/S at 8 lb. a.i./A gallon. Meat and milk samples must be analyzed for the identity and distribution of possible residues of concern.

- o If additional residues of concern besides the parent compound trichlorfon per se are found, additional methodology and residue data for meat and milk may have to be submitted.

5/ Dust formulations are manufactured in low volumes and are rarely applied to crops. Therefore, data are not required for dust formulations unless there is an indication that dust is frequently used on a given crop.

6/ There are currently no federally registered products for this use.

7/ The available data do not support the established tolerance for carrots. Residue data were submitted only for SC/S applications. These residue values were below the tolerance; however, geographic representation was inadequate. The following additional data are required:

TABLE A
Generic Data Requirements for Trichlorfon

§158.125 Residue Chemistry
(continued)

- o Foliar treatments (aerial and ground) at geographically representative field sites with either one of the SC/L or one of the SC/S formulations at 1.5 lb ai/A and subsequent residue analyses which reflect the maximum registered use pattern. Field site data must include arid regions in California; alternatively, a label restriction against usage on irrigated carrots may be proposed.

- o The registrant must submit information specifying the method of application used in the tests reviewed in this section of the trichlorfon Standard.

8/ No valid data are available to support the sugar beet tolerance; all residue data submitted were generated with an invalid cholinesterase inhibition technique. The following data are required:

- o Foliar treatments with one of the SC/L or SC/S formulations at 1.5 lb ai/A and subsequent residue analyses on roots which reflect the maximum current use pattern.

- o Residue data for processed sugar beet products (molasses, dehydrated pulp, and refined sugar) if residues are detected in the raw agricultural commodity.

9/ Based on the available data, a tolerance of 0.1 ppm (negligible) should be established for trichlorfon residues in or on table beet tops. No Codex MRL or Canadian or Mexican tolerance exists for trichlorfon residues in or on beet tops. The existing label directions are considered to be adequate except that the restriction against using beet tops as food must be deleted.

10/ The available residue data are not sufficient to support the established tolerance for lettuce. Only the 50% SC/S formulation was tested; residues were below the tolerance except in the case of the trial conducted in CA, the principal growing region. Several pertinent aspects were unspecified: whether or not data for head lettuce represent heads with or without wrapper leaves, the application method (aerial or ground), and whether or not field sites in CA and AZ were irrigated. Additional data are required which reflect:

- o Field trials in CA or AZ (irrigated and non-irrigated plots of head and leaf lettuce) and in CO and NY with one of the SC/S formulations at 1 lb ai/A. Soil and foliar applications must be made at three or more weekly intervals with ground and aerial equipment. Sampling (with and without wrapper leaves) should reflect the maximum current use pattern.

TABLE A
Generic Data Requirements for Trichlorfon

§158.125 Residue Chemistry
(continued)

- Head and leaf lettuce field trials in CA or AZ (irrigated and non-irrigated plots) and CO and NY with one of the G formulations at 1.5 lb ai/A. Applications (over the row and around the plant base) must be made at three or more weekly intervals with ground and aerial equipment. Sampling (with and without wrapper leaves) should reflect the current maximum application rate and use.

11/ There are no valid data to support the established tolerance for residues resulting from the maximum registered rate for brussels sprouts because the analytical method used to detect trichlorfon residues is invalid. The following residue data are required:

- Field trials from sites in CA, TX, and AZ using one of the SC/S formulations or the 6 lb/gal SC/L formulation at 1 lb ai/A. Soil and foliar applications must be made at three or more weekly intervals with ground and aerial equipment. Sampling should reflect the maximum current use pattern.

12/ There are no valid data to support the established tolerance for residues resulting from the maximum registered rate for cabbage because the colorimetric method used detected the degradation products of trichlorfon rather than the parent compound. Further, the analytical method (a cholinesterase inhibition technique) used to detect trichlorfon residues is not valid. The following data are required:

- Field trials from sites in FL, TX, NC, NJ, and CA using the 6 lb/gal SC/L or one of the SC/S formulations at 1 lb ai/A, and one of the G (bait) formulations at 1 lb ai/A. Soil (G only) and foliar applications must be made at three or more weekly intervals with ground and aerial equipment. Sampling (with and without wrapper leaves) should reflect the maximum current use pattern.

13/ The available data do not support the established tolerance for residues in or on cauliflower resulting from the maximum registered rate. Only the 5% D formulation was tested at a single Canadian site and the application method (ground or aerial) was unspecified. Other data were obtained with an invalid analytical method (a cholinesterase inhibition technique) used to detect trichlorfon residues. The following data are required:

- Field trials from sites in CA, AZ, NY, and MI using one of the SC/S formulations or the 6 lb/gal SC/L formulation at 1 lb ai/A and one of the G (bait) formulations at 1 lb ai/A. Soil (G only) and foliar applications must be made at three or more weekly intervals with ground and aerial equipment. Sampling should reflect the maximum current use pattern.

TABLE A
Generic Data Requirements for Trichlorfon

§158.125 Residue Chemistry
(continued)

14/ There are no valid data to support the established tolerance for trichlorfon residues in or on collards resulting from the maximum registered rate because the analytical method (a cholinesterase inhibition technique) used to detect trichlorfon residues is not valid. The following data are required.

- o Field trials from two or more Gulf Coast localities using one of the SC/S formulations or the 6 lb/gal SC/L formulation at 1 lb ai/A and one of the G (bait) formulations at 1.5 lb ai/A. Soil and foliar applications must be made at three or more weekly intervals with ground and aerial equipment. Sampling should reflect the maximum use pattern.

15/ The available data do not support the established tolerance for cowpeas; however, residue data submitted for the SC/S formulation were below the tolerance. Only one dried bean sample was submitted. The following additional data are required:

- o Soil applications with one of the G formulations (bait) at 1 lb ai/A and subsequent residue analyses on cowpeas, which reflect the maximum current use pattern. Data on dried seed must also be provided.

16/ The available data do not support the established tolerance for residues of trichlorfon in or on dried beans. However, residues in or on dried soybeans grown in north central and southern states and Ontario were <0.02 ppm >14 days after the last of four applications of the 80% SC/S or 4 lb/gal SC/L formulations at <1.5 lb ai/A; these data satisfy the dried bean data requirements for SC/S and SC/L applications at all geographic locations except CA, CO, and WA. The following additional data are required:

- o Foliar applications with one of the SC/S or SC/L formulations and soil applications with one of the G formulations (bait) at 1.5 lb ai/A and subsequent residue analyses on dried beans which reflect the maximum current use pattern. Full geographic representation is required for G applications; SC/S or SC/L field trial data ar eneeded only for CA, CO, and WA.

17/ The available data do not support the established tolerance for lima beans; however, data submitted for SC/S and SC/L applications were below the tolerance. The following additional data are required:

- o Broadcast soil applications with one of the G formulations (bait) at 1.5 lb ai/A and subsequent residue analyses on beans (shelled) and beans in pods at intervals which reflect the maximum current use pattern.

TABLE A
Generic Data Requirements for Trichlorfon

§158.125 Residue Chemistry
(continued)

18/ The available data do not support the established tolerance for snap beans. Residue trials were conducted only with the SC/S formulation; the test submitted from Wisconsin contained residue-exceeding values. Also, geographic representation was inadequate. The following additional data are required:

- o Foliar applications with one of the SC/L formulations and soil applications with one of the G formulations (bait) at 1.5 lb ai/A and subsequent residue analyses on beans at intervals which reflect the maximum current use pattern. Test locations must include FL and GA.

19/ There are no data to support the established tolerance for bean vines. The following data are required:

- o Residue dissipation studies following foliar applications with one of the SC/L or SC/S formulations at 1.5 lb ai/A; this is necessary to establish a pregrazing interval as well as to support the tolerance for bean vines.

- o Foliar applications with one of the SC/L or SC/S formulations at 1.5 lb ai/A and subsequent residue analyses on succulent and dried vines (vine hay) harvested 14 days after the last treatment.

20/ The available data do not support the established tolerance for cowpea vines. Residue data were subitted only for the SC/S formulation; these residue values were below the tolerance. No data for residues in or on vine hay were submitted. The following additional data are required:

- o Residue dissipation studies following foliar applications with one of the SC/L formulations at 1.5 lb ai/A; and soil application with one of the G formulations (bait) at 1 lb ai/A; this is necessary to establish a pregrazing interval for cowpea vines.

- o Foliar applications with one of the SC/L or SC/S formulations at 1.5 lb ai/A and soil applications with one of the G formulations (bait) at 1 lb ai/a and subsequent residue analyses on succulent (SC/L and G formulations only) and dried vine (vine hay) harvested 14 days after the last treatment application.

21/ The available data do not support the established tolerance for lima bean vines and hay; however, data submitted for SC/S and SC/L applications were below the tolerance.

There are no available data to support the established tolerance for lima bean vine hay. The following additional data are required:

§158.125 Residue Chemistry
(continued)

- Residue dissipation studies following two soil applications with one of the G formulations (bait) at 1.5 lb ai/A; this is necessary to establish a pregrazing interval for lima bean vines following G applications.

- Foliar applications with one of the SC/L or SC/S formulations and soil applications with one of the G formulations at 1.5 lb ai/A and subsequent residue analyses on succulent (G formulations only) and dried vines (vine hay) harvested 3 (SC/S), 14 (SC/L), and 30 (G) days after the last treatment application.

22/ The available data do not support the established pepper tolerance following use of the registered formulations at their maximum application rates. Only the 50% SC/S and 5% D formulations were tested and the application method (aerial or ground) was unspecified for both formulations. Additional data are required which reflect:

- Field trials from sites in FL, CA, NJ, NC and TX using one of the formulations at 1 lb ai/A. Soil (over the row and around plant bases) and foliar applications must be made at three or more weekly intervals with ground and aerial equipment. Sampling should reflect the maximum current use pattern.

23/ The available data do not support the established tomato tolerance following use of the registered formulations at their maximum application rates. Residues were below the tolerance; however, only the 5% D and 50% SC/S formulations were tested, the application method (aerial or ground) was unspecified, the prinicpal growing regions of the crop were not represented, and cooked samples were analyzed with an invalid method (see Report No. 2412 for description of the cholinesterase inhibition technique). Additional data are required which reflect:

- Residue analysis of cooked tomatoes (washed and unwashed) following multiple (three or more) foliar or direct applicatons with one of the D formulations at 1.25 lb ai/A. The final treatment should be made on the day of sampling.

- Field trials from sites in FL and TX using an SC/S formulation at 1 lb ai/A. Foliar applications must be made at three or more weekly intervals with ground and aerial equipment. Sampling should reflect the maximum current use pattern.

- Field trials from sites in FL, SC, TX, AR, CA and NJ using one of the G formulations at 1 lb ai/A for multiple (three or more weekly intervals) soil and foliar applications, respectively, with ground and aerial equipment. Sampling should reflect the maximum current use pattern.

§158.125 Residue Chemistry
(continued)

- If residues are found in the tomato fruit, then a processing study is required to determine residues in pomace (wet and dry), puree, catsup and juice.

24/ The available data do not support the established tolerance for pumpkins; however, data are sufficient for SC/S applications. The following additional data are required:

- Single soil applications (made 14 days prior to harvest) of one of the G formulations at 1 lb ai/A using aerial and ground equipment.

Sufficient data are not available to assess the adequacy of the tolerance covering residues resulting from the maximum registered rate or the label directions. No Canadian or Mexican tolerances exist for residues of trichlorfon in or on pumpkins. The Codex MRL and U.S. tolerance are identical.

25/ The available data do not support the established tolerance for citrus fruit. Since aerial applications can be made using spray volumes as low as 1 gallon/A, aerial ULV data are necessary reflecting that particular use. The following additional data are required:

- Single aerial ULV applicatiosn followed by two ground applications of one of the SC/S formulations at 4 lb ai/A and subsequent residue analyses on unwashed whole fruit at intervals which reflect the maximum current use pattern. Data should be submitted for oranges, lemons, and grapefruit.

- Processing studies on oranges treated according to the application regime outlined above to determine residue in or on wet and dried pulp, oil, peel, juice, and molasses.

26/ The available data do not support the established tolerance for trichlorfon residues in or on barley grain which may result from use of the registered formulations in accordance with the label directions. Only 50% SC/S formulation was tested; residues were below the tolerance, but only one application was made (up to three per season are permitted). The method of application (ground or aerial) was unspecified. Additional residue data are required which reflect the following:

- Multiple (> 3 weekly intervals) foliar aerial applications of one of the SC/L or one of the SC/S formulations at 1 lb ai/A.

- If residues occur in grain, then the fractionation study required for wheat will be sufficient to determine residues in barley germ and milled products.

§158.125 Residue Chemistry
(continued)

27/ The available data do not support the established tolerance for oat grain for the following reasons: only a single application of the 50% SC/L was made (up to three treatments per season are permitted); the application method (aerial or ground) was unspecified; and the tolerance-exceeding residues found in the CA test site cannot be considered anomalous from the limited number of tests provided. Additional data are required which reflect the following:

- Field trials conducted in NB and OH or NY which include multiple (three or more weekly intervals) foliar, aerial applications of one of the SC/L or SC/S formulations at 1 lb ai/A.

- If residues occur in grain, then the fractionation study required for wheat will be sufficient to determine residues in milled products.

28/ The available data do not support the established tolerance for wheat grain for the following reasons: only a single application of the 50% SC/L was made (up to three treatments per season are permitted); the application method (aerial or ground) was unspecified; and the tests were not conducted in the principle wheat growing regions. Additional data are required which reflect the following:

- Field trials conducted in KS, TX or OK, IL or IN, and MT which include multiple (three or more weekly intervals) foliar, aerial applications of one of the SC/L or SC/S formulations at 1 lb ai/A.

- If residues occur in grain, then a fractionation study is required to determine residues in milled products and by-products.

29/ The available data do not support the established tolerance for residues in or on barley straw which may result from use of the registered formulations at the maximum application rate since only green samples were collected on the day of treatment. The available data do support the established tolerance for barley forage. The following additional residue data are required:

- Multiple (more than three weekly intervals) foliar, aerial treatments with one of the SC/L formulation or one of the SC/S formulations at 1 lb ai/A. This is necessary to support the straw tolerance and to establish a prefeeding interval.

30/ The available residue data do not support the established tolerance for straw since only green samples were collected at zero and 3 days after treatment. The available data do support the established tolerance for oat forage. The following additional residue data are required:

§158.125 Residue Chemistry
(continued)

- o Multiple (three or more weekly intervals) foliar, aerial treatments with one of the SC/L formulation or one of the SC/S formulations at 1 lb ai/A. This is necessary to support the straw tolerance and to establish a prefeeding interval.

31/ The available residue data do not support the established tolerance for straw since only green samples were collected on the day of treatment. The available data do support the established tolerance for forage. Additional residue data are required which reflect the following:

- o Multiple (more than three weekly intervals) foliar, aerial treatments with one of the SC/L formulations or one of the SC/S formulations at 1 lb ai/A. This is necessary to support the forage and fodder tolerances and to establish a prefeeding interval.

32/ The available residue data do not support the established tolerances for trichlorfon residues in or on pasture grasses and hay following use of the registered formulations at their maximum registered rates. The following additional data are required:

- o Aerial and ground ULV foliar applications of the 4 lb/gal SC/L at 1 lb ai/A followed by a second treatment at 0.5 lb ai/A. Data should be collected for forage and hay on the day of the second application.
- o Sufficient data are available for dilute foliar applications of the 4 lb/gal SC/L or the 80% SC/S formulations; however, the registrant must specify the method of application.

33/ The available data do not support the established tolerances for trichlorfon residues in or rangeland grass forage and hay following use of the registered formulations at their maximum use rates. The following additional data are required:

- o Residue data are required for two aerial ULV applications of the 1.5 lb/gal RTU formulation at 0/1 lb ai/A. Replicate forage and hay samples should be collected on the day of the final treatment.
- o Data are required reflecting single aerial and ground applications of either the 50 or 80% SC/S. Replicate forage and hay samples must be analyzed.
- o The available residue data for ULV applications of the 4 lb/gal SC/L formulation are inconsistent and additional data are needed. This must include replicate forage and hay samples following two aerial or ground treatments, the first at 1 lb/ai/A and the second at 0.5 lb ai/A.

§158.125 Residue Chemistry
(continued)

34/ The available data do not support the established tolerance for alfalfa and alfalfa hay following use of the registered formulations at their maximum registered rates; all registered formulation classes were not tested. Residues were below the tolerances for the 50 and 80% SC/S and the 4 lb/gal SC/L (including ULV treatments). The following additional data are required:

- Single broadcast soil applications with the 5% P/T or one of the G formulations at 1 lb ai/A using ground equipment. Sampling of both green and dried (hay) alfalfa should reflect the maximum current use pattern.

35/ Data submitted in support of the tolerance for alfalfa hay were translated to, and support the established tolerance for, trichlorfon residues in or on birdsfoot trefoil hay for the following reasons:

- The growth characteristics and use patterns for birdsfoot trefoil are very similar to those of alfalfa.
- Translated data submitted in support of the established tolerance for alfalfa hay were adequate for the SC/S and SC/L formulations.
- Residue levels of trichlorfon in or on birdsfoot trefoil hay are not anticipated to exceed the maximum levels found in or on alfalfa hay.

36/ The alfalfa data do not support the established tolerances for clover and clover hay because all the registered formulation classes were not tested. Residues resulting from the use of the 50% SC/S and the 4 lb/gal SC/L formulations were found not to exceed the established tolerances. The following additional residue data are required:

- Residue studies reflecting single broadcast soil applications with the 5% P/T formulation at 1 lb ai/A using aerial equipment. Sampling of both green and dried (hay) clover shold reflect the maximum current use pattern.

37/ Insufficient data exist to support the established tolerance for trichlorfon residues in or on artichokes. The available data were obtained using an invalid analytical procedure (acetylcholinesterase inhibition) and additional residue data must be generated using a valid procedure:

- Ground applications of a dust (D) and, to support Section 24(c) uses, a granular (G) formulation at 2.5 lb ai/A.

§158.125 Residue Chemistry
(continued)

38/ The available data do not support the established 0.1 ppm tolerance for trichlorfon residues in or on cottonseed; all of the residue data submitted were generated using an invalid cholinesterase inhibition technique. The following data are required:

- o Foliar ULV treatments with the 4 lb/gal SC/L at 0.5 lb ai/A, foliar treatments with one of the SC/S or SC/L formulations at 1.5 lb ai/A, and soil treatments with one of the G formulations (bait) at 1.5 lb ai/A. All formulations must be applied twice using aerial (SC/L or SC/S) or ground (G) equipment; residues should be determined on both forage (since grazing is permitted) and seed at intervals which reflect the maximum current use pattern

- o If residues are detected in the cottonseed, a fractionation study to determine residues in the following processed products is required: meal, hulls, soapstock, crude oil, and refined oil.

39/ The available data do not support the established tolerance for flaxseed. Residues resulting from the maximum registered application rate were below the tolerance for flaxseed; however, only the 50% SC/S was tested, the method of application was unspecified and only single applications were made (three/season are permitted). The available data do not support the established 1 ppm tolerance for flax straw because straw was not analyzed. The following additional data are required:

- o Residue data for flax straw following multiple (no less than three) applications of the 50 or 80% SC/S formulation at 1 lb ai/A using ground and aerial equipment.

- o Field trials in MN, TX, and Manitoba, Canada, with one of the G formulations at 1 lb ai/A. Soil and foliar applications must be made at three or more weekly intervals with ground and aerial equipment.

  Sampling of flaxseed should reflect the maximum current use pattern. Straw should be sampled after drying (for SC/L only).

- o If residues are found in flax grain, then the fractionation study requested for cottonseed will be sufficient to determine residues in meal (linseed) and hulls.

40/ The available data do not support the established tolerance for safflower seed. Data were submitted only for the 50% SC/S formulation applied at 2 lb ai/A; the method of application was not specified. Also, of the four residue values submitted, one exceeded the tolerance by 0.5 ppm. The processing study which was submitted for meal and

§158.125 Residue Chemistry
(continued)

crude and refined oil was unsuitable; safflower seed did not contain field-treated detectable residues. The following additional data are required:

- o Two applications (at 14 days prior to bloom and at bloom) of one of the SC/S formulations (foliar applications) at 1.5 lb ai/A using aerial and ground equipment, and one of the G (bait) formulations at 1.5 lb ai/A using ground equipment. Field test locations should include irrigated regions; alternatively, a label restriction against usage on irrigated crops may be proposed.

- o If residues are found in safflower seed, the processing study requested for cottonseed will be adequate to determine residues in meal and oil; if residues in excess of those established for the r.a.c. are found in meal or oil, food/feed additive tolerances must be proposed.

41/ The following data are required to assess the exposure of man to residues of trichlorfon in or on tobacco:

- o Residue analyses on green tobacco harvested 3 days after the second of two foliar applications of the 4% G at 0.6 lb ai/A and one of the SC/S formulations at 1 lb ai/A.

- o Residue analyses on green tobacco 3 days after the last of two soil applications of one of the G (bait) formulations at 1 lb ai/A; the second application should be made when plants are approximately 2 ft. tall.

- o If residues in green tobacco are >0.1 ppm, pyrolysis products of trichlorfon must be characterized.

42/ The available data do not support the established tolerance for trichlorfon in cattle meat, fat, and meat by-products. Although the feeding studies and pour-on application data are adequate; the following additional data are required:

- o A single high pressure spray application of the 80% SC/S formulation (8 lb ai/100 gal) and residue analyses on meat, fat, and meat by-products after a posttreatment interval of 14 days.

43/ The available data do not support the established tolerance for trichlorfon in milk. The feeding studies are adequate; however, the following additional data are required to reflect the dermal use.

§158.125 Residue Chemistry
(continued)

- o A single pour-on application of the 8% RTU formulation (0.5 fl. oz/100 lb body weight but no more than 4 fl. oz/animal) and residue analyses on milk samples taken twice daily for 7 days following application or until residues are <0.01 ppm.

44/ The available data indicate that there is no reasonable expectation of finite residues in eggs; therefore, no tolerance for trichlorfon residues in or on eggs will be required [40 CFR 180.6a(3)]. However, no data were submitted pertaining to residues of trichlorfon in or on poultry meat (muscle, liver, kidney, and fat) resulting from ingestion of trichlorfon residues at the maximum expected dietary intake level; therefore, the following additional data are required:

- o Poultry feeding studies at 5, 15, and 50 ppm for 28 consecutive days and subsequent residue analyses on poultry meat (muscle, liver, kidney, and fat) from animals slaughtered within 24 hours of the final feeding. If the requested metabolism data reveal no additional residues of concern and if the requested ruminant residue studies indicate that residues are nondetectable, then the above poultry feeding studies will be waived.

45/ No valid data are available to support the tolerance for sugar beet tops; all residue data submitted were generated with an invalid cholinesterase inhibition technique. The following data are required:

- o Foliar treatments with one of the SC/L or SC/S formulations at 1.5 lb/A and subsequent residue analysis on tops which reflect the maximum current use pattern.

TABLE A
GENERIC DATA REQUIREMENTS FOR TRICHLORFON

Data Requirement	Composition[1]	Use Pattern[2]	Does EPA Have Data To Satisfy This Requirement? (Yes, No or Partially)	Bibliographic Citation	Must Additional Data be Submitted Under FIFRA Section 3(c)(2)(B)?
§158.130 Environmental Fate					
DEGRADATION STUDIES-LAB:					
161-1 - Hydrolysis	TGAI or PAIRA	A,B,D,E,F,G,H	No	-	Yes[3a]
Photodegradation					
161-2 - In water	TGAI or PAIRA	A,B,D,G	No	-	Yes[3a]
161-3 - On soil	TGAI or PAIRA	A,G	No	-	Yes[3a]
161-4 - In Air	TGAI or PAIRA	A,E,F	No	-	Yes[3a],[4]
METABOLISM STUDIES-LAB:					
162-1 - Aerobic Soil	TGAI or PAIRA	A,B,E,F,G,H	Yes	GS0104080	No
162-2 - Anaerobic Soil	TGAI or PAIRA	A	No[5]	-	Yes[3a]
162-3 - Anaerobic Aquatic	TGAI or PAIRA	D,G	No	-	Yes[3]
162-4 - Aerobic Aquatic	TGAI or PAIRA	D,G	No	-	Yes[3]
MOBILITY STUDIES:					
163-1 - Leaching and Adsorption/Desorption	TGAI or PAIRA	A,B,D,E,F,G,H	Partial[6]	00068214	Yes[3a]
163-2 - Volatility (Lab)	TEP	A	No	-	Yes[3]
163-3 - Volatility (Field)	TEP	A	No	-	Reserved[7]

TABLE A
GENERIC DATA REQUIREMENTS FOR TRICHLORFON

Data Requirement	Composition[1/]	Use Pattern[2/]	Does EPA Have Data To Satisfy This Requirement? (Yes, No or Partially)	Bibliographic Citation	Must Additional Data be Submitted Under FIFRA Section 3(c)(2)(B)?
§158.130 Environmental Fate (continued)					
DISSIPATION STUDIES-FIELD:					
164-1 - Soil	TEP	A,B,H	No	-	Yes[3a/],[8/]
164-2 - Aquatic (Sediment)	TEP	D	Partial	00091852	Yes[3/],[9/]
164-3 - Forestry	TEP	G	Partial[10/]	00092002	Yes[3a/]
164-4 - Combination and Tank Mixes	TEP		Not Applicable		
164-5 - Soil, Long-term	TEP	A	No	-	No[11/]
ACCUMULATION STUDIES:					
165-1 - Rotational Crops (Confined)	PAIRA	A	No	-	Yes[3/]
165-2 - Rotational Crops (Field)	TEP	A	No	-	Reserved[12/]
165-3 - Irrigated Crops	TEP		Not Applicable		
165-4 - In Fish	TGAI or PAIRA	A,B,D,G	No	-	Yes[3/],[13/]
164-5 - In Aquatic Non-Target Organisms	TEP	A,B,D.G	Yes	00092002	Yes[3/]

TABLE A
Generic Data Requirements For Trichlorfon

158.130 Environmental Fate
(continued)

1/ Composition: TGAI = Technical grade of the active ingredient; PAIRA = Pure active ingredient, radiolabeled; TEP = Typical end-use product.

2/ The use patterns are coded as follows:
A = Terrestrial, Food Crop; B = Terrestrial, Non-Food;
C = Aquatic, Food Crop; D = Aquatic, Non-Food; E = Greenhouse,
Food crop; F = Greenhouse, Non-Food; G = Forestry;
H = Domestic Outdoor; I = Indoor.

3/ Data must be submitted no later than June, 1987.

3a/ The Agency is concerned about the potential contamination of ground water by trichlorfon and its metabolites. Data required for the evaluation of the potential for contamination are being required on an accelerated basis. These data will be required to be submitted as follows:

- Hydrolysis (161-1), Photodegradation (161-2,-3,-4), and Mobility (163-1) must be submitted no later than December, 1984.
- Soil Metabolism (162-1,-2), Field Dissipation (164-1, -3) must be submitted no later than June, 1986.

4/ Not required unless used in greenhouses.

5/ The anaerobic aquatic metabolism data may be substituted for the anaerobic soil metabolism data, but the reverse is not permissible.

6/ Study (00068214) partially fulfills mobility data requirements for terrestrial, food crop; terrestrial, non-food; and forestry use patterns, by providing information on the rapid leaching of trichlorfon in five soil types by soil thin layer chromatography. To satisfy mobility data requirements for terrestrial, food crop; terrestrial, non-food; and forestry use patterns, an additional study in which the mobility of trichlorfon aged in a sandy loam soil is assessed by using either soil TLC or soil column techniques is required. Additional, adsorption/desorption (batch equilibrium) studies are required on four soils, preferably a sand (agricultural), sandy loam, silt loam, clay or clay loam for domestic outdoor and greenhouse uses and on one aquatic sediment obtained from, or representative of, the aquatic use area for aquatic non-food crop use pattern.

7/ Data requirement depends on the results of the laboratory studies.

8/ Terrestrial field dissipation studies are required for: (1) terrestrial, food crop uses; representative use pattern sites should include field vegetable crops, orchard crop (citrus) and pasture grasses, (2) terrestrial, non-food uses; representative use pattern sites should include tobacco and turf (golf courses) and, (3) domestic outdoor uses; representative use pattern sites should include lawns.

9/ Study (00091852) partially fulfills field dissipation-aquatic (sediment) data requirements by providing information showing that the SC/S formulation of trichlorfon did not persist in fish rearing pond water or in mud under alkaline conditions. Two additional aquatic field dissipation studies are required for two different fish rearing ponds under acidic conditions (pH 5-6) which are representative of the fish rearing ponds for which there is a registered parasiticide use.

10/ Study (00092002) was reviewed and is considered scientifically valid. However, this study was conducted with the SC/S formulation of trichlorfon, which is not currently registered for forestry use. Therefore forestry dissipation studies are required for the end-use product with the largest amount of trichlorfon for which there is a registered use.

11/ No data were submitted; however, the data requirements are waived based on the aerobic soil metabolism study which demonstrated that $\leq$50% of the trichlorfon initially appplied would be present in soil when a subsequent application would occur.

12/ Reserved pending results of 165-1.

13/ This data requirement depends on the results of 63-11 and 161-1. No data on the accumulation of trichlorfon in fish will be required if trichlorfon has a half-life of less than 4 days in water or an octanol water partition coefficient of less than 1000.

TABLE A
GENERIC DATA REQUIREMENTS FOR TRICHLORFON

Data Requirement	Composition 1/	Use Pattern 2/	Does EPA Have Data To Satisfy This Requirement? (Yes, No or Partially)	Bibliographic Citation	Must Additional Data Be Submitted Under FIFRA Section 3(c)(2)(B)? 3/
158.135 Toxicology					
ACUTE TESTING:					
81-1 - Acute Oral Toxicity - Rat	TGAI	A,B,D,E,F,G,H	Yes	00081186 00005494 GS0104069 GS0104070 GS0104071	No
81-2 - Acute Dermal Toxicity Rabbit	TGAI	A,B,D,E,F,G,H	Yes	GS0104072 GS0104069 GS0104070	No
81-3 - Acute Inhalation Toxicity - Rat	TGAI	A,B,D,E,F,H	No	-	Yes
81-7 - Delayed Neurotoxicity - Hen	TGAI	A,B,D,E,F,G,H	Yes	GS0104073	No
SUBCHRONIC TESTING:					
82-1 - 90-Day Feeding - Rodent, Non-rodent	TGAI	A,E	No	-	Yes
82-2 - 21-Day Dermal Rabbit	TGAI	A,B,D,E,F,G,H	No	-	Yes
82-3 - 90-Day Dermal Rabbit	TGAI	A,B,D,E,F,G,H	No	-	Yes
82-4 - 90-Day Inhalation - Rat	TGAI	A,B,D,E,F,G,H	No	-	Yes
82-5 - 90-Day Neurotoxicity - Hen/Mammal	TGAI	A,B,D,E,F,G,H	No	-	Yes

TABLE A
GENERIC DATA REQUIREMENTS FOR TRICHLORFON

Data Requirement	Composition 1/	Use 2/ Pattern	Does EPA Have Data To Satisfy This Requirement? (Yes, No or Partially)	Bibliographic Citation	Must Additional Data Be Submitted Under FIFRA Section 3(c)(2)(B)? 3/
§158.135 Toxicology (continued)					
CHRONIC TESTING:					
83-1 - Chronic Toxicity -	TGAI	A,B,D,E,F,G,H	No	-	Yes 4/
83-2 - Oncogenicity - 2 species: Rat and mouse preferred	TGAI	A,B,D,E,F,G,H	No	-	Yes
83-3 - Teratogenicity - 2 species	TGAI	A,B,D,E,F,G,H	Partial	00063192 5/ GS0104074 GS0104075	Yes 6/
83-4 - Reproduction - Rat 2-generation	TGAI	A,B,D,E,F,G,H	Yes	GS0104076	No
MUTAGENICITY TESTING:					
84-2 - Gene Mutation	TGAI	A,B,D,E,F,G,H	Yes	00028625 GS010477	No
84-2 - Chromosomal Aberration	TGAI	A,B,D,E,F,G,H	No	-	Yes
84-2 - Other Mechanisms of Mutagenicity	TGAI	A,B,D,E,F,G,H	Yes	00028625 GS0104077 GS0104078 GS0104079	No

TABLE A
GENERIC DATA REQUIREMENTS FOR TRICHLORFON

Data Requirement	Composition 1/	Use 2/ Pattern	Does EPA Have Data To Satisfy This Requirement? (Yes, No or Partially)	Bibliographic Citation	Must Additional Data Be Submitted Under FIFRA Section 3(c)(2)(B)? 3/
SPECIAL TESTING:					
85-1 - General Metabolism	PAI or PAIRA	A,B,D,E,F,G,H	No	-	Yes
85-2 - Domestic Animal Safety	Choice	A,B,D,G,H	No	-	Yes

1/ Composition: TGAI = Technical grade of active ingredient; PAI = Pure active ingredient; PAIRA = Pure active ingredient, radiolabeled; Choice = Choice of several test substances determined on a case-by-case basis.

2/ The use patterns are coded as follows: A = Terrestrial, Food Crop; B = Terrestrial, Non-Food; C = Aquatic, Food Crop; D = Aquatic, Non-Food; E = Greenhouse, Food Crop; F = Greenhouse, Non-Food; G = Forestry; H = Domestic Outdoor; I = Indoor.

3/ Data must be submitted no later than June, 1987.

4/ Two species are required: one rodent, rat preferred; and one non-rodent which must be the dog.

5/ The gavage portion of this study is valid but the feeding portion is considered inadequate.

6/ Data from an adequate dietary study in the rat must be submitted.

TABLE A
GENERIC DATA REQUIREMENTS FOR TRICHLORFON

Data Requirement	Composition 1/	Use 2/ Pattern	Does EPA Have Data To Satisfy This Requirement? (Yes, No or Partially)	Bibliographic Citation	Must Additional Data Be Submitted Under FIFRA Section 3(c)(2)(B)? 3/
§158.140 Reentry Protection					
132-1 - Foliar Dissipation	TEP	A,B,D,G	No	-	No
132-1 - Soil Dissipation	TEP	A,B,D,G	No	-	No
133-3 - Dermal Exposure	TEP	A,B,D,G	No	-	No
133-4 - Inhalation Exposure	TEP	A,B,D,G	No	-	No

1/ Composition: TEP = Typical end-use product

2/ The use patterns are coded as follows: A = Terrestrial, Food Crop; B = Terrestrial, Non-Food; C = Aquatic, Food Crop; D = Aquatic, Non-Food; E = Greenhouse, Food Crop; F = Greenhouse, Non-Food; G = Forestry; H = Domestic Outdoor; I = Indoor.

3/ No data were submitted; however, data are not being required at this time because the toxicity of trichlorfon does not exceed subpart K requirements for reentry. These data may be required after other data required under this standard have been reviewed and evaluated.

TABLE A
GENERIC DATA REQUIREMENTS FOR TRICHLORFON

Data Requirement	Composition[1]	Use Pattern[2]	Does EPA Have Data To Satisfy This Requirement? (Yes, No or Partially)	Bibliographic Citation	Must Additional Data be Submitted Under FIFRA Section 3(c)(2)(B)?[3]
§158.145 Wildlife and Aquatic Organisms					
AVIAN AND MAMMALIAN TESTING					
71-1 - Acute Avian Oral Toxicity	TGAI	A,B,G	Yes	00073683	No
71-2 - Avian Subacute Dietary Toxicity	TGAI	A,B,G,I	Yes	00034769	No
71-3 - Wild Mammal Toxicity	TGAI	A,B,G	Not Required		
71-4 - Avian Reproduction	TGAI	A,B,G	Not Required		
71-5 - Simulated and Actual Field Testing - Mammals and Birds	TEP	A,B,G	Not Required		
AQUATIC ORGANISM TESTING					
72-1 - Freshwater Fish Acute Toxicity	TGAI	A,B,D,G,I	Yes	00091881 00091766 GS0104081 00065495	No
-do-	TEP	D,G	Yes	00091766 GS0104081	No

TABLE A

GENERIC DATA REQUIREMENTS FOR TRICHLORFON

Data Requirement	Composition 1/	Use Pattern 2/	Does EPA Have Data To Satisfy This Requirement? (Yes, No or Partially)	Bibliographic Citation	Must Additional Data be Submitted Under FIFRA Section 3(c)(2)(B)? 3/
§158.145 Wildlife and Aquatic Organisms (continued)					
72-2 - Acute Toxicity to Freshwater Invertebrates	TGAI	A,B,D,C,I	Yes	GS0104081	No
-do-	TEP	D,G	Yes	GS0104081	No
72-3 - Acute Toxicity Estuarine and Marine Organisms	TGAI	A,B,D,G	Not Required		
72-4 - Fish Early Life Stage and Aquatic Invertebrate Life-Cycle	TGAI	A,B,D,G	No	-	Yes 4/
72-5 - Fish - Life-Cycle	TGAI	A,B,D,G	No		Reserved 5/
72-6 - Aquatic Organism Accumulation	TGAI, PAR or Degradation Product	A,B,D,E	No		Reserved 5/
72-7 - Simulated or Actual Field Testing - Aquatic Organisms	TEP	A,B,D,G	No		Reserved 6/

Table A
Generic Data Requirements for Trichlorfon

158.145 Wildlife and Aquatic Organisms
(continued)

1/ Composition: TGAI = Technical grade of the active ingredient; PAI = pure active ingredient; TEP = Typical end-use product;

2/ The use patterns are coded as follows: A = Terrestrial, Food Crop; B = Terrestrial, Non-Food Crop; C = Aquatic Food Crop; D = Aquatic, Non-Food Crop; E = Greenhouse, Food Crop; F = Greenhouse, Non-Food; G = Forestry; H = Domestic Outdoor; I = Indoor.

3/ Data must be submitted no later than June, 1987 .

4/ Data requirement is limited to the aquatic invertebrate life cycle test; use patterns - A,B,D,E.

5/ Reserved pending submission of appropriate environmental fate studies (e.g., dissipation and hydrolysis studies) which are needed to determine if hazardous concentrations of trichlorfon will reach or accumulate in the aquatic environment when products are used as directed.

6/ Reserved pending results of 72-4.

TABLE A
GENERIC DATA REQUIREMENTS FOR TRICHLORFON

Data Requirement	Composition 1/	Use Pattern 2/	Does EPA Have Data To Satisfy This Requirement? (Yes, No or Partially)	Bibliographic Citation	Must Additional Data be Submitted Under FIFRA Section 3(c)(2)(B)? 3/
§158.150 Plant Protection					
121-1 - TARGET AREA PHYTOTOXICITY	EP		No	-	No 4/
NONTARGET AEA PHYTOTOXICITY					
TIER I					
122-1 - Seed Germination/ Seedling Emergence	TGAI		No	-	No 4/
122-1 - Vegetative Vigor	TGAI		No	-	No 4/
122-2 - Aquatic Plant Growth	TGAI		No	-	No 4/
TIER II					
123-1 - Seed Germination/ Seedling Emergence	TGAI		No	-	No 4/
123-1 - Vegetative Vigor	TGAI		No	-	No 4/
123-2 - Aquatic Plant Growth	TGAI		No	-	No 4/
TIER III					
124-1 - Terrestrial Field	TEP		No	-	No 4/
124-2 - Aquatic Field	TEP		No	-	No 4/

1/ Composition: TGAI = Technical grade of the active ingredient; TEP = Typical end-use product. EP = End-use product.

2/ The use patterns are coded as follows: A = Terrestrial, Food Crop; B = Terrestrial, Non-Food Crop; C = Aquatic, Food Crop; D = Aquatic, Non-Food; E = Greenhouse, Food Crop; F = Greenhouse, Non-Food; G = Forestry; H = Domestic Outdoor; I = Indoor.

3/ Reserved.

4/ These requirements are generally not required unless it is believed there is a phototoxicity problem.

TABLE A

GENERIC DATA REQUIREMENTS FOR TRICHLORFON

Data Requirement	Composition[1]	Use Pattern[2]	Does EPA Have Data To Satisfy This Requirement? (Yes, No or Partially)	Bibliographic Citation	Must Additional Data be Submitted Under FIFRA Section 3(c)(2)(B)?[3]
§158.155 Nontarget Insect					
NONTARGET INSECT TESTING - POLLINATORS:					
141-1 - Honey bee acute contact LD_{50}	TGAI	A,B,G,H	Yes	00036935	No
141-2 - Honey bee - toxicity of residues on foliage	TEP	A,B,G,H	Yes	00060628, 05000837	No
141-3 - Wild bees important in alfalfa pollination - toxicity of residues on foliage	TEP	A,B,G,H	Not Required		
141-4 - Honey bee subacute feeding study	[Reserved] [4]				
141-5 - Field testing for pollinators	TEP	A,B,G,H	Yes	05004412	No

TABLE A

GENERIC DATA REQUIREMENTS FOR TRICHLORFON

Data Requirement	Composition[1]	Use[2] Pattern	Does EPA Have Data To Satisfy This Requirement? (Yes, No or Partially)	Bibliographic Citation	Must Additional Data be Submitted Under FIFRA Section 3(c)(2)(B)?[3]
§158.155 Nontarget Insect (continued)					
NONTARGET INSECT TESTING - AGUATIC INSECTS					
142-1 - Acute toxicity to aquatic insects	[Reserved] [5]				
142-2 - Acute insect life-cycle study	[Reserved] [5]				
142-3 - Simulated or actual field testing for aquatic insects	[Reserved] [5]				
143-1 thru 143-3 - **NONTARGET INSECT TESTING - PREDATORS AND PARASITES**	[Reserved] [5]				

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[1] Composition: TGAI = Technical grade of the active ingredient; TEP = Typical end-use product. EP = End-use product.

[2] The use patterns are coded as follows: A = Terrestrial, Food Crop; B = Terrestrial, Non-Food Crop; C = Aquatic, Food Crop; D = Aquatic, Non-Food; E = Greenhouse, Food Crop; F = Greenhouse, Non-Food; G = Forestry; H = Domestic Outdoor; I = Indoor.

[3] Reserved.

[4] Reserved pending development of test methodology.

[5] Reserved pending Agency decision as to whether the data requirements should be established.

III. REQUIREMENT FOR SUBMISSION OF PRODUCT-SPECIFIC DATA

Note: This Section applies only to manufacturing-use products, not end-use products.

A necessary first step in determining which statements must appear on your product's label is the completion and submission to EPA of product-specific data* listed on the form entitled "Product Specific Data Report" (EPA Form 8580-4, Appendix III-1) to fill "gaps" identified by EPA concerning your product. Under the authority of FIFRA Section 3(c)(2)(B), EPA has determined that you must submit these data to EPA in order to register or reregister your product(s). All of these data must be submitted not later than six months after you receive this guidance document.

"Product-Specific Data Requirements for Manufacturing-Use Products" appearing in Table B permit you to determine which product-specific data you must submit. This can be done by examining the entries in the column of those tables entitled "Must Data Be Submitted Under §3(c)(2)(B)."

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*/ Product specific data pertains to data that support the formulation which is marketed; it usually includes product chemistry data and acute toxicology data.

TABLE B
PRODUCT SPECIFIC DATA REQUIREMENTS FOR MANUFACTURING-USE PRODUCTS CONTAINING TRICHLOFON

§158.120 - PRODUCT CHEMISTRY

Guideline Citation and Name of Test	Test Substance 1/	Guidelines Status	Are Data Required 2/ Yes	No	Footnote Number
PRODUCT IDENTITY:					
61-1 - Identity of Ingredients	MP	R	☒	☐	
61-2 - Statement of Composition	MP	R	☒	☐	
61-3 - Discussion of Formation of Ingredients	MP	R	☒	☐	
Analysis and Certification of Product Ingredients					
62-1 - Preliminary Analysis	MP	R	☒	☐	
62-2 - Certification of Limits	MP	R	☒	☐	
62-3 - Analytical Methods for Enforcement of Limits	MP	R	☒	☐	
Physical and Chemical Characteristics					
63-2 - Color	MP	R	☒	☐	
63-3 - Physical State	MP	R	☒	☐	
63-4 - Odor	MP	R	☒	☐	

TABLE B
PRODUCT SPECIFIC DATA REQUIREMENTS FOR MANUFACTURING-USE PRODUCTS CONTAINING TRICHLORFON

§158.120 - PRODUCT CHEMISTRY (Con't)

Guideline Citation and Name of Test	Test Substance 1/	Guidelines Status	Are Data Required 2/ Yes	Are Data Required 2/ No	Footnote Number
Physical and Chemical Characteristics (Continued)					
63-7 - Density, Bulk Density, or Specific Gravity	MP	R	☒	☐	
63-12 - pH	MP	R	☒	☐	
63-14 - Oxidizing or Reducing Action	MP	CR	☒	☐	
63-15 - Flammability	MP	CR	☒	☐	
63-16 - Explodability	MP	R	☒	☐	
63-17 - Storage Stability	MP	R	☒	☐	
63-18 - Viscosity	MP	CR	☒	☐	
63-19 - Miscibility	MP	CR	☒	☐	
63-20 - Corrosion Characteristics	MP	R	☒	☐	
Other Requirements:					
64-1 - Submittal of samples	PAI	CR	☐	☒	

1/ Composition: MP = Manufacturing-Use Prouct; PAI = Pure Active Ingredient'
2/ Data must be submitted no later than December, 1984.

TABLE B

PRODUCT SPECIFIC DATA REQUIREMENTS FOR MANUFACTURING-USE PRODUCTS CONTAINING TRICHLORFON

Data Requirement	Composition 1/	Does EPA Have Data To Satisfy This Requirement? (Yes, No or Partially)	Bibliographic Citation	Must Additional Data Be Submitted Under FIFRA Section 3(c)(2)(B)? 2/
158.135 Toxicology				
ACUTE TESTING:				
81-1 - Oral LD_{50} - Rat	MP	Yes	00081186 00005494 GS0104069 GS0104070 GS0104071	No
81-2 - Dermal LD_{50} - Rabbit	MP	Yes	GS0104072 GS0104069 GS0104070	No
81-3 - Inhalation LC_{50} - Rat	MP	No	-	Yes
81-4 - Primary Eye Irritation - Rabbit	MP	No	-	Yes
81-5 - Primary Dermal Irritation - Rabbit	MP	No	-	Yes
81-6 - Dermal Sensitization - Guinea Pig	MP	No	-	Yes

1/ Composition: MP = Manufacturing product

2/ Data must be submitted no later then December, 1984.

IV. SUBMISSION OF REVISED LABELING AND PACKAGING INFORMATION

Note: This section applies to end-use products only to the the extent described under Section II of this document. Otherwise, the following information pertains exclusively to manufacturing-use products.

The Agency requires applicants for registration or reregistration to ensure that each label (1) contains accurate, complete, and sufficient instructions and precautions, reflecting the results of data concerning the product and its ingredients, and (2) incorporates labeling format and terminology which are sufficiently standardized to avoid user confusion.

As part of your application, you will be required to submit draft labeling consistent with: applicable product-specific data; the precautionary statements and use directions; and the regulations concerning classification [40 CFR §162.11(c)], packaging [40 CFR §162.16], and labeling [40 CFR §162.10, Appendix IV-1 an IV-2], as indicated by the following paragraphs of this chapter of the guidance document.

If owners of currently registered products fail to submit revised labeling and packaging information complying with this Section and/or Section II, EPA may issue a notice of intent to cancel the registration under FIFRA §6(b)(1).

A. Label Contents

40 CFR §162.10 (Appendix IV-1) requires that certain specific labeling statements must appear at certain locations on the label. This is referred to as format labeling. Specific label items listed below are keyed to Tables D, E, and F (Appendix IV-2).

Item 1. PRODUCT NAME - The name, brand, or trademark is required to be located on the front panel, preferably centered in the upper part of the panel. The name of a product will not be accepted if it is false or misleading. See Appendix IV-1. [40 CFR §162.10(b)]

Item 2. COMPANY NAME AND ADDRESS - The name and address of the registrant or distributor is required on the label. The name and address should preferably be located at the bottom of the front panel or at the end of the label text. See Appendix IV-1. [40 CFR §162.10(c)]

Item 3. NET CONTENTS - A net content statement is required on all labels. The preferred location is the bottom of the front panel immediately above the company name and address, or at the end of the label text. The net contents must be stated in terms of weight, expressed as avoirdupois pounds and ounces, and stated in terms of the largest suitable unit, i.e., "1 pound 10 ounces" rather than "26 ounces." In addition to the required units specified, net contents may be expressed in metric units. See Appendix IV-1. [40 CFR §162.10(d)]

Item 4. EPA REGISTRATION NUMBER - The registration number assigned to the pesticide product must appear on the label, preceded by the phrase "EPA Registration No.," or "EPA Reg. No." The registration number must be set in type of a size and style similar to other print on that part of the label on which it appears and must run parallel to it. The registration number and the required identifying phrase must not appear in such a manner as to suggest or imply recommendation or endorsement of the product by the Agency. See Appendix IV-1. [40 CFR §162.10(e)]

Item 5. EPA ESTABLISHMENT NUMBER - The EPA establishment number, preceded by the phrase "EPA Est." is the final establishment at which the product was produced, and may appear in any suitable location on the label or immediate container. It must also appear on the wrapper or outside container of the package if the EPA establishment registration number on the immediate container cannot be clearly read through such wrapper or container. See Appendix IV-1. [40 CFR §162.10(f)]

Item 6. INGREDIENT STATEMENT - An ingredient statement is required on the front panel and must contain the name and percentage by weight of each active ingredient and the total percentage by weight of all inert ingredients. The preferred location is immediately below the product name. The ingredient statement must run parallel with, and be clearly distinguished from, other text on the panel. It must not be placed in the body of other text. See Appendix IV-1. [40 CFR 162.10(g)]

Item 6A. POUNDS PER GALLON STATEMENT - For liquid agricultural formulations, the pounds per gallon of active ingredient must be indicated on the label.

Item 7. FRONT LABEL PRECAUTIONARY STATEMENTS - All labels are required to have precautionary statements grouped together on the front panel, preferably within a block outline. The table below shows the minimum type size requirements on various size labels, as set forth in the Regulations.

Size of Label on Front Panel in Square Inches	Signal Word as Required Minimum Type Size All Capitals	"Keep Out of Reach of Children" as Required
5 and under	6 point	6 point
above 5 to 10	10 point	6 point
above 10 to 15	12 point	8 point
above 15 to 30	14 point	10 point
over 30	18 point	12 point

Item 7A. CHILD HAZARD WARNING STATEMENT - All labels are required to have the statement "Keep Out of Reach of Children" located on the front panel above the signal word except where contact with children during distribution or use is unlikely. See Appendix IV-1. [40 CFR §162.10(h)(1)(ii)]

Item 7B. SIGNAL WORD - The signal word (Caution, Warning, or Danger) is required on the front panel immediately below the child hazard warning statement. See Appendix IV-1. [40 CFR §162.10 (h)(1)(i)]

Item 7C. SKULL & CROSSBONES AND WORD "POISON" - On products assigned a toxicity Category I on the basis of oral, inhalation, or dermal toxicity, the word "Poison" shall appear on the label in red on a background of distinctly contrasting color and the skull and crossbones shall appear in immediate proximity to the word poison. See Appendix IV-1. [40 CFR §162.10(h)(1)(i)]

Item 7D. STATEMENT OF PRACTICAL TREATMENT - A statement of practical treatment (first aid or other) shall appear on the label of pesticide products in toxicity Categories I, II, and III. See Appendix IV-1. [40 CFR §162.10(h)(1)(iii)]

Item 7E. REFERRAL STATEMENT - The statement "See Side (or Back) Panel for Additional Precautionary Statements" is required on the front panel for all products, unless all required precautionary statements appear on the front panel. See Appendix IV-1. [40 CFR §162.10(h)(1)(iii)]

Item 8. SIDE/BACK PANEL PRECAUTIONARY LABELING - The precautionary statements as listed below must appear together on the label under the heading "PRECAUTIONARY STATEMENTS." The preferred location is at the top of the side or back panel preceding the directions for use, and it is preferred that these statements be surrounded by a block outline. Each of the three hazard warning statements must be headed by the appropriate hazard title. See Appendix IV-1. [40 CFR §162.10 (h)(2)]

Item 8A. HAZARD TO HUMANS AND DOMESTIC ANIMALS - Where a hazard exists to humans or domestic animals, precautionary statements are required indicating the particular hazard, the route(s) of exposure and the precautions taken to avoid accident, injury or damage. See Appendix IV-1. [40 CFR §162.10 (h)(2)(i)]

Item 8B. ENVIRONMENTAL HAZARD - Where a hazard exists to non-target organisms excluding humans and domestic animals, precautionary statements are required stating the nature of the hazard and the appropriate precautions to avoid potential accident, injury, or damage. See Appendix IV-1. [40 CFR §162.10(h)(2)(ii)]

Item 8C. PHYSICAL OR CHEMICAL HAZARD

1. Flammability statement. Precautionary statements relating to flammability of a product are required to appear on the label if it meets the criteria in Appendix IV-3. The requirement is based on the results of the flashpoint determinations and flame extension tests required to be submitted for all products. These statements are to be located in the side/back panel precautionary statements section, preceded by the heading "Physical/Chemical Hazards." Note that no signal word is used in conjunction with the flammability statements.

2. Criteria for declaration of non-flammability. The following criteria will be used to determine if a product is non-flammable:

   a. A "non-flammable gas" is a gas (or mixture of gases) that will not ignite when a lighted match is placed against the open cylinder valve.

   b. A "non-flammable liquid" is one having a flashpoint greater than 350°F (177°C) as determined by the method specified in 40 CFR §163.61-8(c)(13)(ii) of Subpart D.

   c. A "non-flammable aerosol" is one which meets the following criteria:

      i. The flame extension is zero inches, using the method specified in 40 CFR §163.61-8(c)(13)(ii);

      ii. There is no flash back; and

      iii. The flashpoint of the non-volatile liquid component is greater than 350°F (177°C), determined by the method specified in 40 CFR §163.61-8(c)(13)(i).

3. Declaration of non-flammability. Products which meet the criteria for non-flammability specified above may bear the notation "non-flammable" or "nonflammable (gas, liquid, etc.)" on the label.

   It may appear as a substatement to the ingredients statement, or on a back or side panel, but shall not be highlighted or emphasized (as with an inordinately large type size) in any way that may detract from precaution.

4. Other physical/chemical hazard statements. When chemistry data submitted in accordance with 40 CFR §163.61-10(c) demonstrate hazards of a physical or chemical nature other than flammability, appropriate statements of hazard will be prescribed. Such statements may address hazards of explosivity, oxidizing or reducing capability, or mixing with other substances to produce toxic fumes.

Item 9. MISUSE STATEMENT - The following statement is required on your label: "It is a violation of Federal law to use this product in a manner inconsistent with its labeling." See Appendix IV-1. [40 CFR §162.10(1)(2)(ii)]

Item 10A. STORAGE AND DISPOSAL BLOCK - All labels are required to bear storage and disposal statements. These statements are developed for specific containers, sizes, and chemical content. Make certain that the statement you use pertains specifically to your product. These instructions must be grouped and appear under the heading "Storage and Disposal" in the directions for use. This heading must be set in the same type sizes as required for the child hazard warning. Refer to Appendix IV-5 for the latest specific storage and disposal product label statements.

Item 10B. DIRECTIONS FOR USE - Directions for use must be stated in terms which can be easily read and understood by the average person likely to use or to supervise the use of the pesticide. When followed, directions must be adequate to protect the public from fraud and from personal injury and to prevent unreasonable adverse effects on the environment. See Appendix IV-1. [40 CFR §162.10]

B. Collateral Information

Bulletins, leaflets, circulars, brochures, data sheets, flyers, and other graphic printed matter which is referred to on the label or which is to accompany the product are termed collateral labeling. Such labeling may not bear claims or representations that differ in substance from those accepted in connection with registration of the product. It should be made part of the response to this notice and submitted for review.

V. INSTRUCTIONS FOR SUBMISSION

All applications prepared in response to this Notice should be addressed as follows:

Product Manager William H. Miller
Phone No. (703) 557-2600
Registration Division (TS-767)
Office of Pesticide Programs
Environmental Protection Agency
Washington, D.C. 20460

For each product for which continued registration is desired:

1. Within 90 days from receipt of this document, you must submit the "FIFRA Section 3(c)(2)(B) Summary Sheet" EPA Form 8580-1. Refer to Appendix II-2 with appropriate attachments.

2. Within 6 months from receipt of this document registrants must submit:

   a. Confidential Statement of Formula, EPA Form 8570-4.

   b. Product Specific Data Report, EPA Form 8580-4 (Appendix III-1).

   c. Two copies of any required product-specific data.

   d. Two copies of draft labeling, including the label and associated brochures. If current labeling conforms to the requirements of this guidance document and the results of the short-term data, the registrant may submit such labeling. (End-use product labeling needs to comply specifically with the instruction in Section II of this guidance document.) The labeling should be either typewritten text on 8-1/2 x 11 inch paper or a mockup of the labeling suitable for stortage in 8-1/2 x 11 inch files. The draft label must indicate the intended colors of the final label, clear indication of the front panel label, and the intended type sizes of the text.

3. Within the time set forth in Table A, all generic data must be submitted by the affected registrant(s).

Note: If for any reason any required test is delayed or aborted so that meeting the agreed submission time will be delayed, notify the Product Manager listed above.

After the Supreme Court has ruled on the Monsanto Decision, you will be informed as to when you must submit your Application for Amended Pesticide Registration (EPA Form 8570-1) and the associated data support information.

OFFICE OF PESTICIDE PROGRAMS
REGISTRATION STANDARD BIBLIOGRAPHY
Citations Considered to be Part of the Data Base Supporting Registration Under the Trichlorfon Standard

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00034769 Hill, E.F.; Heath, R.G.; Spann, J.W.; et al. (1975) Lethal Dietary Toxicities of Environmental Pollutants to Birds. By U.S. Fish and Wildlife Service, Patuxent Wildlife Research Center. Washington, D.C.: U.S. FWS. (Special Scientific Report—Wildlife No. 191; also In unpublished submission received Mar 28, 1979 under 3125-236; submitted as report number 33423a by Mobay Chemical Corp., Kansas City, Mo.; CDL:237905-B)

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OFFICE OF PESTICIDE PROGRAMS
REGISTRATION STANDARD BIBLIOGRAPHY
Citations Considered to be Part of the Data Base Supporting Registration Under the Trichlorfon Standard

00060628 Johansen, C.A.; Eves, J. (1965) Bee Poisoning Investigations, 1965: Report No. G-1705; Report No. 17338. (Unpublished study, including letter dated Jun 12, 1973 from C.A. Johansen to A.D. Cohick, received Mar 27, 1974 under 4F1485; prepared by Washington State Univ., Dept. of Entomology, submitted by Chemagro Corp., Kansas City, MO.; CDL:092011-I)

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OMB Approval No. 2000-0468 (Expires 12-31-83)

FIFRA SECTION 3(C)(2)(B) SUMMARY SHEET	EPA REGISTRATION NO.

PRODUCT NAME

APPLICANT'S NAME	DATE GUIDANCE DOCUMENT ISSUED

With respect to the requirement to submit "generic" data imposed by the FIFRA section 3(C)(2)(B) notice contained in the referenced Guidance Document, I am responding in the following manner:

☐ 1. I will submit data in a timely manner to satisfy the following requirements. If the test procedures I will use deviate from (or are not specified in) the Registration Guidelines or the Protocols contained in the Reports of Expert Groups to the Chemicals Group, OECD Chemicals Testing Programme, I enclose the protocols that I will use:

☐ 2. I have entered into an agreement with one or more other registrants under FIFRA section 3(C)(2)(B)(ii) to satisfy the following data requirements. The tests, and any required protocols, will be submitted to EPA by:

NAME OF OTHER REGISTRANT

☐ 3. I enclose a completed "Certification of Attempt to Enter Into an Agreement with Other Registrants for Development of Data" with respect to the following data requirements:

☐ 4. I request that you amend my registration by deleting the following uses (this option is not available to applicants for new products):

☐ 5. I request voluntary cancellation of the registration of this product. (This option is not available to applicants for new products.)

REGISTRANT'S AUTHORIZED REPRESENTATIVE	SIGNATURE	DATE

EPA Form 8580-1 (10-82)

Appendix II-3

OMB Approval No. 2000-0468 (Expires: 12-31-83)

CERTIFICATION OF ATTEMPT TO ENTER INTO AN AGREEMENT WITH OTHER REGISTRANTS FOR DEVELOPMENT OF DATA

(To qualify, certify ALL four items)

1. I am duly authorized to represent the following firm(s) who are subject to the requirements of a Notice under FIFRA Section 3(c)(2)(B) contained in a Guidance Document to submit data concerning the active ingredient:	**GUIDANCE DOCUMENT DATE** **ACTIVE INGREDIENT**

NAME OF FIRM	EPA COMPANY NUMBER

(This firm or group of firms is referred to below as "my firm".)

2. My firm is willing to develop and submit the data as required by that Notice, if necessary. However, my firm would prefer to enter into an agreement with one or more other registrants to develop jointly, or to share in the cost of developing, the following required items or data:

3. My firm has offered in writing to enter into such an agreement. Copies of the offers are attached. That offer was irrevocable and included an offer to be bound by an arbitration decision under FIFRA Section 3(c)(2)(B)(iii) if final agreement on all terms could not be reached otherwise. This offer was made to the following firm(s) on the following date(s):

NAME OF FIRM	DATE OF OFFER

However, none of those firm(s) accepted my offer.

4. My firm requests that EPA not suspend the registration(s) of my firm's product(s), if any of the firms named in paragraph (3) above have agreed to submit the data listed in paragraph (2) above in accordance with the Notice. I understand EPA will promptly inform me whether my firm must submit data to avoid suspension of its registration(s) under FIFRA Section 3(c)(2)(B). (This statement does not apply to applicants for new products.) I give EPA permission to disclose this statement upon request.

TYPED NAME	SIGNATURE	DATE

EPA Form 8580-6 (10-82)

PRODUCT SPECIFIC DATA REPORT

EPA Registration No.________________Guidance Document for____________________________

Date____________________________

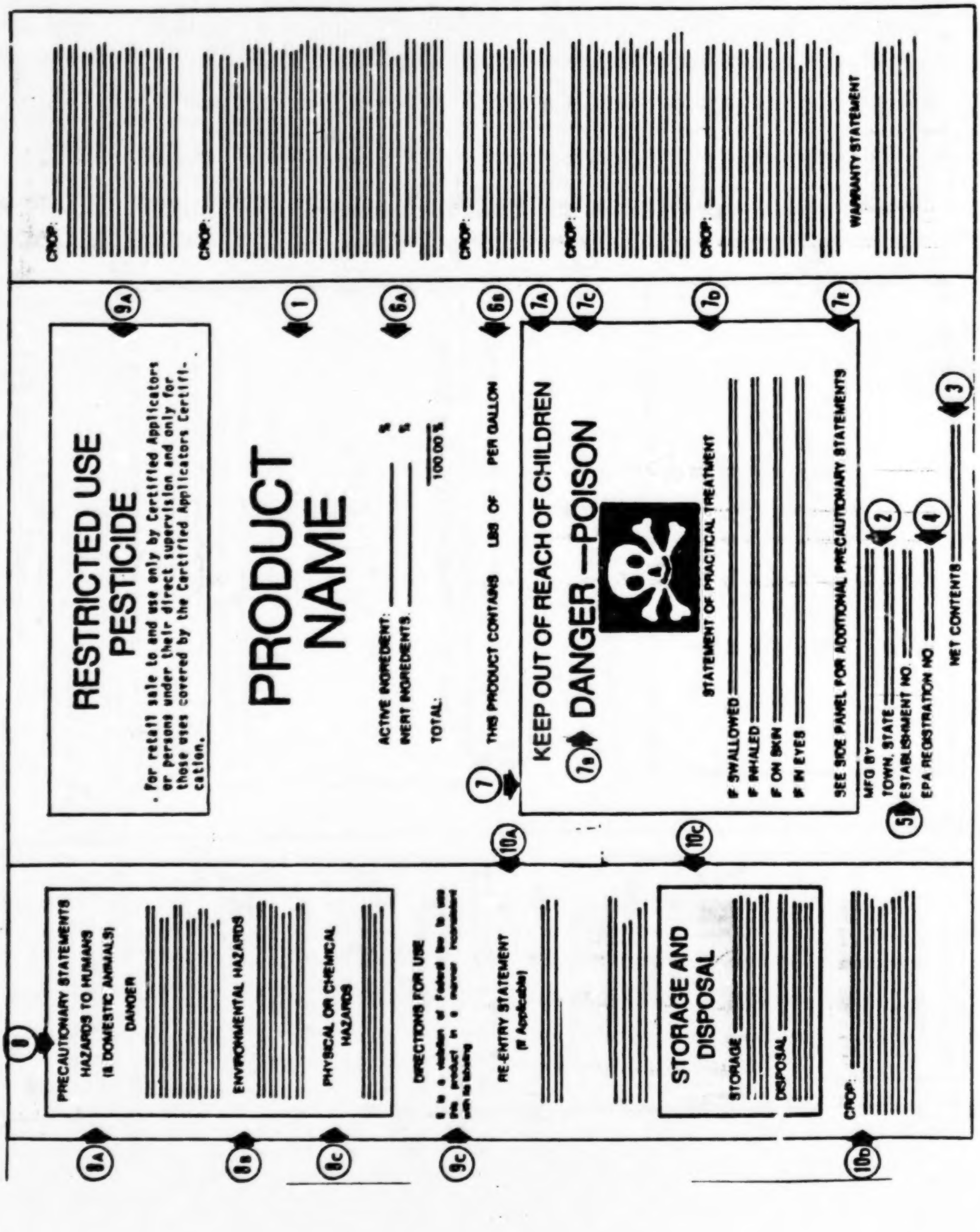
Registration Guideline No.	Name of Test	Test not required for my product listed above (check below)	I am complying with data requirements by		(For EPA Use Only) Accession Numbers Assigned
			Citing MRID#	Submitting Data (Attached)	
§158.20 PRODUCT CHEMISTRY					
61-1	Identity of ingredients				
61-2	Statement of composition				
61-3	Discussion of formation of ingredients				
62-1	Preliminary analysis				
62-2	Certification of limits				
62-3	Analytical methods for enforcement limits				
63-2	Color				
63-3	Physical state				
63-4	Odor				
63-5	Melting point				
63-6	Boiling point				
63-7	Density, bulk-density, or specific gravity				
63-8	Solubility				
63-9	Vapor pressure				
63-10	Dissociation constant				
63-11	Octanol/water partition coefficient				
63-12	pH				
63-13	Stability				
63-14	Oxidizing/reducing reaction				
63-15	Flammability				
63-16	Explodability				
63-17	Storage stability				
63-18	Viscosity				
63-19	Miscibility				

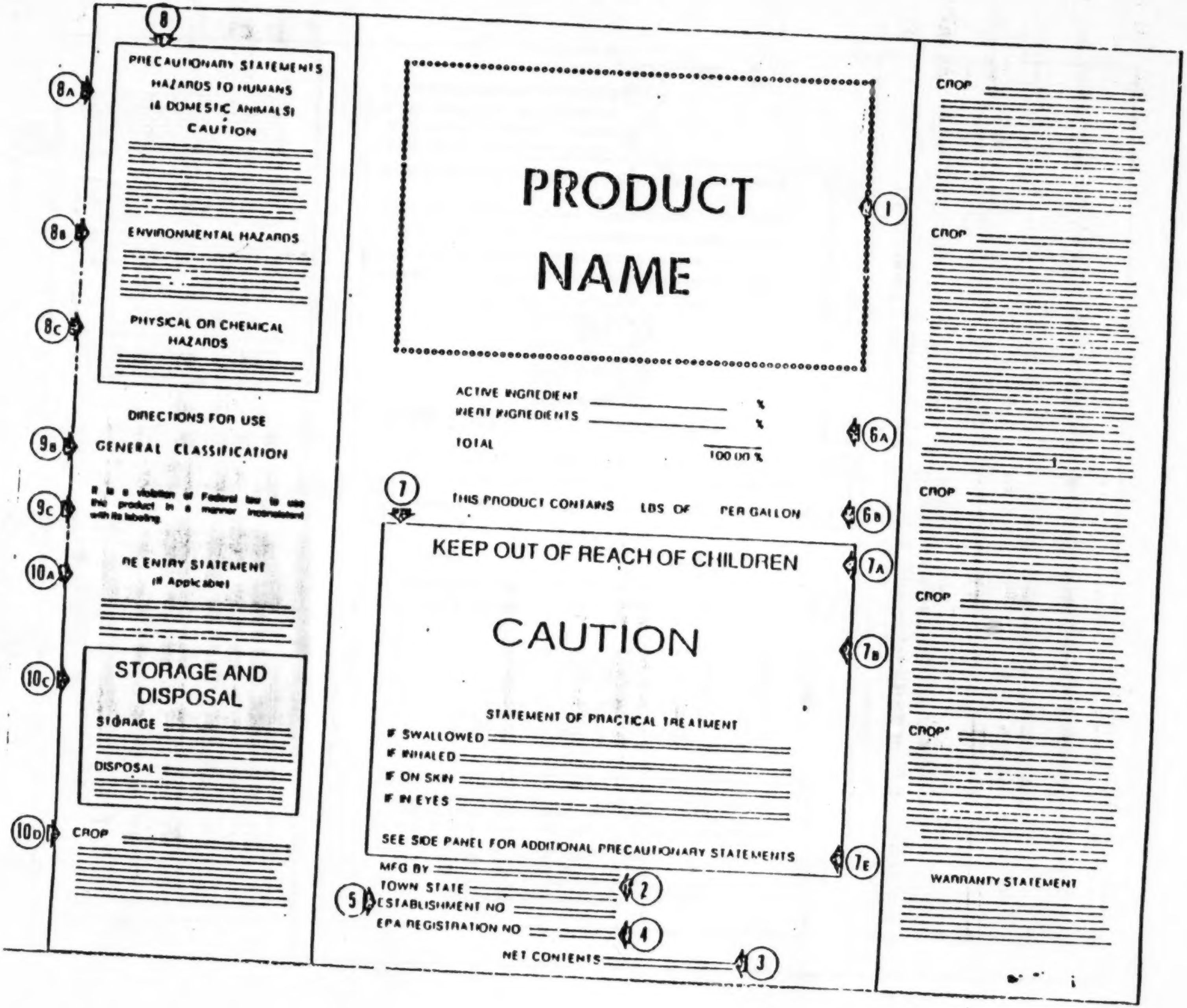
PRODUCT SPECIFIC DATA REPORT

EPA Registration No.________________Guidance Document for__________________________

Date________________________

63-20	Corrosion characteristics				
63-21	Dielectric breakdown voltage				
§158.135 TOXICOLOGY					
81-1	Acute oral LD-50, rat				
81-2	Acute dermal LD-50				
81-3	Acute inhalation, LC-50 rat				
81-4	Primary eye irritation, rabbit				
81-5	Primary dermal irritation				
81-6	Dermal sensitization				


RESTRICTED USE PESTICIDE
For retail sale to and use only by Certified Applicators or persons under their direct supervision and only for those uses covered by the Certified Applicators Certification.
PRODUCT NAME
ACTIVE INGREDIENT: %
INERT INGREDIENTS: %
TOTAL: 100.00 %
THIS PRODUCT CONTAINS LBS OF PER GALLON
KEEP OUT OF REACH OF CHILDREN
DANGER—POISON
STATEMENT OF PRACTICAL TREATMENT
IF SWALLOWED
IF INHALED
IF ON SKIN
IF IN EYES
SEE SIDE PANEL FOR ADDITIONAL PRECAUTIONARY STATEMENTS
MFG BY
TOWN, STATE
ESTABLISHMENT NO.
EPA REGISTRATION NO.
NET CONTENTS
PRECAUTIONARY STATEMENTS
HAZARDS TO HUMANS (& DOMESTIC ANIMALS)
DANGER
ENVIRONMENTAL HAZARDS
PHYSICAL OR CHEMICAL HAZARDS
DIRECTIONS FOR USE
It is a violation of Federal law to use this product in a manner inconsistent with its labeling
RE-ENTRY STATEMENT (If Applicable)
STORAGE AND DISPOSAL
STORAGE
DISPOSAL
CROP:
CROP:
CROP:
CROP:
CROP:
CROP:
WARRANTY STATEMENT
1
2
3
4
5
6A
6B
7
7A
7B
7C
7D
7E
8
8A
8B
8C
9A
9C
10A
10C
10D


8
PRECAUTIONARY STATEMENTS
HAZARDS TO HUMANS
(& DOMESTIC ANIMALS)
CAUTION
8A
ENVIRONMENTAL HAZARDS
8B
PHYSICAL OR CHEMICAL
HAZARDS
8C
DIRECTIONS FOR USE
GENERAL CLASSIFICATION
9B
It is a violation of Federal law to use this product in a manner inconsistent with its labeling.
9C
RE ENTRY STATEMENT
(If Applicable)
10A
STORAGE AND
DISPOSAL
STORAGE
DISPOSAL
10C
CROP
10D
PRODUCT
NAME
1
ACTIVE INGREDIENT
INERT INGREDIENTS
TOTAL
100.00 %
6A
7
THIS PRODUCT CONTAINS LBS OF PER GALLON
6B
KEEP OUT OF REACH OF CHILDREN
7A
CAUTION
7B
STATEMENT OF PRACTICAL TREATMENT
IF SWALLOWED
IF INHALED
IF ON SKIN
IF IN EYES
SEE SIDE PANEL FOR ADDITIONAL PRECAUTIONARY STATEMENTS
7E
MFG BY
TOWN STATE
2
5
ESTABLISHMENT NO
EPA REGISTRATION NO
4
NET CONTENTS
3
CROP
CROP
CROP
CROP
CROP
WARRANTY STATEMENT

APPENDIX IV-2

LABELING REQUIREMENTS OF THE FIFRA, AS AMENDED (REFER TO THE SAMPLE LABELS FOLLOWING)

ITEM	LABEL ELEMENT	APPLICABILITY OF REQUIREMENT	PLACEMENT ON LABEL		COMMENTS
			REQUIRED	PREFERRED	
1	Product name	All products	Front panel	Center front panel	
2	Company name and address	All products	None	Bottom front panel or end of label text	If registrant is not the producer, must be qualified by "Packed for . . .," "Distributed by. . .," etc.
3	Net contents	All products	None	Bottom front panel or end of label text	May be in metric units in addition to U.S. units
4	EPA Est. No.	All products	None	Front panel	Must be in similar type size and run parallel to other type.
5	EPA Reg. No.	All products	None	Front panel, immediately before or following Reg. No.	May appear on the container instead of the label.
6A	Ingredients statement	All products	Front panel	Immediately following product name	Text must run parallel with other text on the panel.
6B	Pounds/gallon statement	Liquid products where dosage given as lbs. ai/unit area	Front panel	Directly below the main ingredients statement	
7	Front panel precautionary statements	All products	Front panel		All front panel precautionary statements must be grouped together, preferably blocked.
7A	Keep Out of Reach of Children (Child hazard warning)	All products	Front panel	Above signal word	Note type size requirements.
7B	Signal word	All products	Front panel	Immediately below child hazard warning	Note type size requirements.

ITEM	LABEL ELEMENT	APPLICABILITY OF REQUIREMENT	PLACEMENT ON LABEL		COMMENTS
			REQUIRED	PREFERRED	
7C	Skull & crossbones and word POISON (in red)	All products which are Category I based on oral, dermal, or inhalation toxicity	Front panel	Both in close proximity to signal word	
7D	Statement of practical treatment	All products in Categories I, II, and III	Category I: Front panel unless referral statement is used. Others: Grouped with side panel precautionary statements.	Front panel for all.	
7E	Referral statement	All products where precautionary labeling appears on other than front panel.	Front panel		
8	Side/back panel precautionary statements	All products	None	Top or side of back panel preceding directions for use	Must be grouped under the headings in 8A, 8B, and 8C; preferably blocked.
8A	Hazards to humans and domestic animals	All products in Categories I, II, and III	None	Same as above	Must be preceded by appropriate signal word.
8B	Environmental hazards	All products	None	Same as above	Environmental hazards include bee caution where applicable.

ITEM	LABEL ELEMENT	APPLICABILITY OF REQUIREMENT	PLACEMENT ON LABEL		COMMENTS
			REQUIRED	PREFERRED	
8C	Physical or chemical hazards	All pressurized products, others with flash points under 150°F	None	Same as above	
9A	Restricted block	All restricted products	Top center of front panel	Preferably blocked	Includes a statement of the terms of restriction. The words "RESTRICTED USE PESTICIDE" must be same type size as signal word.
9C	Misuse statement	All products	Immediately following statement of classification or ahead of directions for use		
10A	Re-entry statement	All cholinesterase inhibitors	In the directions for use	Immediately after misuse statement	
10C	Storage and disposal block	All products	In the directions for use	Immediately before specific directions for use or at the end of directions for use	Must be set apart and clearly distinguishable from from other directions for use.
10D U.S.	Directions for use	All products	None	None	May be in metric as well as U.S. units

Appendix IV-3

PHYSICAL-CHEMICAL HAZARDS

Criteria	Required Label Statement
I. Pressurized Containers	
A. Flashpoint at or below 20°F; or if there is a flashback at any valve opening.	Extremely flammable. Contents under pressure. Keep away from fire, sparks, and heated surfaces. Do not puncture or incinerate container. Exposure to temperatures above 130°F may cause bursting.
B. Flashpoint above 20°F and not over 80°F; or if the flame extension is more than 18 inches long at a distance of 6 inches from the valve opening.	Flammable. Contents under pressure. Keep away from heat, sparks, and flame. Do not puncture or incinerate container. Exposure to temperatures above 130°F may cause bursting.
C. ALL OTHER PRESSURIZED CONTAINERS	Contents under pressure. Do not use or store near heat or open flame. Do not puncture or incinerate container. Exposure to temperatures above 130°F may cause bursting.
II. Non-Pressurized Containers	
A. Flashpoint at or below 20°F.	Extremely flammable. Keep away from fire, sparks, and heated surfaces.
B. Flashpoint above 20°F and over 80°F.	Flammable. Keep away from heat and open flame.
C. Flashpoint over 80°F and not over 150°F.	Do not use or store near heat and open flame.
D. Flashpoint above 150°F.	None required.

STORAGE AND DISPOSAL INSTRUCTIONS FOR PESTICIDES

All products are required to bear specific label instructions about storage and disposal. Storage and disposal instructions must be grouped together in the directions for use portion of the label under the heading STORAGE AND DISPOSAL. Products intended solely for domestic use need not include the heading "STORAGE AND DISPOSAL." The STORAGE AND DISPOSAL heading must appear in the minimum type size listed below:

Size of label front panel in square inches	Required type size for the heading STORAGE AND DISPOSAL (all capitals)
10 and under	.6 point
Above 10 to 15	.8 point
Above 15 to 30	10 point
Over 30	12 point

Storage and disposal instructions must be set apart and clearly distinguishable from other directions for use. Blocking storage and disposal statements with a solid line is suggested as a means of increasing their prominence.

A. Storage Instructions:

All product labels are required to have appropriate storage instructions. Specific storage instructions are not prescribed. Each registrant must develop his own storage instructions, considering, when applicable, the following factors:

1. Conditions of storage that might alter the composition or usefulness of the pesticide. Examples could be temperature extremes, excessive moisture or humidity, heat, sunlight, friction, or contaminating substances or media.

2. Physical requirements of storage which might adversely affect the container of the product and its ability to continue to function properly. Requirements might include positioning of the container in storage, storage or damage due to stacking, penetration of moisture, and ability to withstand shock or friction.

3. Specifications for handling the pesticide container, including movement of container within the storage area, proper opening and closing procedures (particularly for opened containers), and measures to minimize exposure while opening or closing container.

4. Instructions on what to do if the container is damaged in any way, or if the pesticide is leaking or has been spilled, and precautions to minimize exposure if damage occurs.

5. General precautions concerning locked storage, storage in original container only, and separation of pesticides during storage to prevent cross-contamination of other pesticides, fertilizer, food, and feed.

6. General storage instructions for household products should emphasize storage in original container and placement in locked storage areas.

B. Pesticide Disposal Instructions:

The label of all products, except those intended solely for domestic use, must bear explicit instructions about pesticide disposal. The statements listed below contain the exact wording that must appear on the label of these products:

1. The labels of all products, except domestic use, must contain the statement, "Do not contaminate water, food, or feed by storage or disposal."

2. Except those products intended solely for domestic use, the labels of all products that contain active ingredients appearing on the "Acutely Hazardous" Commercial Pesticide Products List (RCRA "E" List) at the end of this appendix or are assigned to Toxicity Category I on the basis of oral or dermal toxicity, skin or eye irritation potential, or Toxicity Category I or II on the basis of acute inhalation toxicity must bear the following pesticide disposal statement:

   "Pesticide wastes are acutely hazardous. Improper disposal of excess pesticide, spray mixture, or rinsate is a violation of Federal Law. If these wastes cannot be disposed of by use according to label instructions, contact your State Pesticide or Environmental Control Agency, or the Hazardous Waste representative at the nearest EPA Regional Office for guidance."

   The labels of all products, except those intended for domestic use, containing active or inert ingredients that appear on the "Toxic" Commercial Pesticide Products List (RCRA "F" List) at the end of this appendix or presently meet any of the criteria in Subpart C, 40 CFR 261 for a hazardous waste must bear the following pesticide disposal statement:

"Pesticide wastes are toxic. Improper disposal of excess pesticide, spray mixture, or rinsate is a violation of Federal Law. If these wastes cannot be disposed of by use according to label instructions, contact your State Pesticide or Environmental Control Agency, or the Hazardous Waste representative at the nearest EPA Regional Office for guidance."

Labels for all other products, except those intended for domestic use, must bear the following pesticide disposal statement:

"Wastes resulting from the use of this product may be disposed of on site or at an approved waste disposal facility."

3. Products intended for domestic use only must bear the following disposal statement: "Securely wrap original container in several layers of newspaper and discard in trash."

C. Container Disposal Instructions

The label of each product must bear container disposal instructions appropriate to the type of container.

1. All products intended for domestic use must bear one of the following container disposal statements:

Container Type	Statement
Non-aerosol products (bottles, cans, jars)	Do not reuse container (bottle, can, jar). Rinse thoroughly before discarding in trash.
Non-aerosol products (bags)	Do not reuse bag. Discard bag in trash.
Aerosol products	Replace cap and discard containers in trash. Do not incinerate or puncture.

2. The labels for all other products must bear container disposal instructions, based on container type, listed below:

Container Type	Statement
Metal containers (non-aerosol)	Triple rinse (or equivalent). Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill, or by other procedures approved by state and local authorities.
Plastic containers	Triple rinse (or equivalent). Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill, or incineration, or, if allowed by state and local authorities, by burning. If burned, stay out of smoke.
Glass containers	Triple rinse (or equivalent). Then dispose of in a sanitary landfill or by other approved state and local procedures.

Appendix IV-5
(continued)

Container Type	Statement
Fiber drums with liners	Completely empty liner by shaking and tapping sides and bottom to loosen clinging particles. Empty residue into application equipment. Then dispose of liner in a sanitary landfill or by incineration if allowed by state and local authorities. If drum is contaminated and cannot be reused[1], dispose of in the same manner.
Paper and plastic bags	Completely empty bag into application equipment. Then dispose of empty bag in a sanitary landfill or by incineration, or, if allowed by State and local authorities, by burning. If burned, stay out of smoke.
Compressed gas cylinders	Return empty cylinder for reuse (or similar wording).

[1] Manufacturer may replace this phrase with one indicating whether and how fiber drum may be reused.

2. The labels for all other products must bear container disposal instructions, based on container type, listed on the first page of this Appendix.

Pesticides that are hazardous wastes under 40 CFR 261.33(e) and (f) when discarded.

"Acutely Hazardous" Commercial Pesticides (RCRA "E" List) Active Ingredients, (no inerts):

Acrolein
Aldicarb
Aldrin
Allyl alcohol
Aluminum phosphide
4-Aminopyridine
Arsenic acid
Arsenic pentoxide
Arsenic trioxide
Calcium cyanide
Carbon disulfide
p-Chloroaniline
Cyanides (soluble cyanide salts, not specified elsewere)
Cyanogen chloride
2-Cyclohexyl-4,6-dinitrophenol
Dieldrin
0,0-Diethyl S-[2-ethylthio)ethyl] phosphorodithioate
    (disulfoton, Di-Syston)
0,0-Diethyl 0-pyrazinyl phosphorothioate (Zinophos)
Dimethoate
0,0-Dimethyl 0-p-nitrophenyl phosphorothioate (methyl parathion)
4,6-Dinitro-o-cresol and salts
4,6-Dinitro-o-cyclohexylphenol
2,4 Dinitrophenol
Dinoseb
Endosulfan
Endothall
Endrin
Famphur
Fluoroacetamide
Heptachlor
Hexanethyl tetraphosphate
Hydrocyanic acid
Hydrogen cyanide
Methomyl
alpha-Naphthylthiourea (ANTU)
Nicotine and salts
Octamethylpyrophosphoramide (OMPA, schradan)
Parathion

"Acutely Hazardous" Commercial Pesticides (RCRA "E" List) Active Ingredients continued:

Phenylmercuric acetate (PMA)
Phorate
Potassium cyanide
Propargyl alcohol
Sodium azide
Sodium cyanide
Sodium fluoroacetate
Strychnine and salts
0,0,0,0-Tetraethyl dithiopyrophosphate (sulfotepp)
Tetraethyl pyrophosphate
Thallium sulfate
Thiofanox
Toxaphene
Warfarin
Zinc phosphide

There are currently no inert ingredients for commercial pesticides on the "Acutely Hazardous" List (RCRA "E" List).

"Toxic" Commercial Pesticide Products (RCRA "F" List)
Active Ingredients:

Acetone
Acrylonitrile
Amitrole
Benzene
Bis(2-ethylhexyl)pthalate
Cacodylic acid
Carbon tetrachloride
Chloral (hydrate)
Chlordane (technical)
Chlorobenzene
4-Chloro-m-cresol
Chloroform
o-Chlorophenol
4-Chloro-o-toluidine hydrochloride
Creosote
Cresylic acid
Cyclohexane
Decachlorooctahydro-1,3,4-metheno-2H-cyclobuta[c,d]-pentalen-2-one
    (kepone, chlordecone)
1,2-Dibromo-3-chloropropane (DBCP)
Dibutyl phthalate
S-3,3-(Dichloroallyl diisopropylthiocarbamate (diallate, Avadex)
o-Dichlorobenzene
p-Dichlorobenzene
Dichlorodifluoromethane (Freon 12®)
3,5-Dichloro-N-(1,1-dimethyl-2-propynyl) benzamide (pronamide,Kerb)
Dichloro diphenyl dichloroethane (DDD)
Dichloro diphenyl trichloroethane (DDT)
Dichlorethyl ether
2,4-Dichlorophenoxyacetic, esters and salts (2,4-D)
1,2-Dichloropropane
1,3-Dichloropropane (Telone)
Dimethyl phthalate
Ethyl acetate
Ethyl 4,4'-dichlorobenzilate (chlorobenzilate)
Ethylene dibromide (EDB)
Ethylene dichloride
Ethylene oxide
Formaldehyde
Furfural
Hexachlorobenzene
Hexachlorocyclopentadiene
Hexachloroethane
Hydrofluoric acid

"Toxic" Commercial Pesticide Products (RCRA "F" List)
Active Ingredients:

Isobutyl alcohol
Lead acetate
Lindane
Maleic hydrazide
Mercury
Methyl alcohol
Methyl bromide
Methyl chloride
2,2'-Methylenebis (3,4,6-trichlorophenol) (hexachlorophene)
Methylene chloride
Methyl ethyl ketone
4-Methyl-2-pentanone (methyl isobutyl ketone)
Naphthalene
Nitrobenzene
p-Nitrophenol
Pentachloroethane
Pentachloronitrobenzene (PCNB)
Pentaclorophenol
Phenol
Phosphorodithioic acid, 0,0-diethyl, methyl ester
Propylene dichloride
Pyridine
Resorcinol
Safrole
Selenium disulfide
Silvex
1,2,4,5-Tetrachlorobenzene
1,1,2,2-Tetrachloroethane
Tetrachloroethylene
2,3,4,6-Tetrachlorophenol
Thiram
Toluene
1,1,1-Trichloroethane
Trichloroethylene
Trichloromonofluoromethane (Freon 11®)
2,4,5-Trichlorophenol
2,4,6-Trichlorophenol
2,4,5-Trichlorophenoxyacetic acid (2,4,5-T)
Xylene

"Toxic" Commercial Pesticide Products (RCRA "F" List) Inert Ingredients:

Acetone
Acetonitrile
Acetophenone
Acrylic acid
Aniline
Benzene
Chlorobenzene
Chloroform
Cyclohexane
Cyclohexanone
Dichlorodifluoromethane (Freon 12®)
Diethyl phthalate
Dimethylamine
Dimethyl phthalate
1,4-Dioxane
Ethylene oxide
Formaldehyde
Formic acid
Isobutyl alcohol
Meleic anhydride
Methyl alcohol (methanol)
Methyl ethyl ketone
Methyl methacrylate
Naphthalene
Saccharin and salts
Thiourea
Toluene
1,1,1-Trichloroethane
1,1,2-Trichloroethane
Trichlorofluoromethane (Freon 11®)
Vinyl chloride
Xylene